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Agriculture

In cooperation with Illinois
Agricultural Experiment
Station



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Natural
Resources
Conservation
Service

Soil Survey of Macon County, Illinois



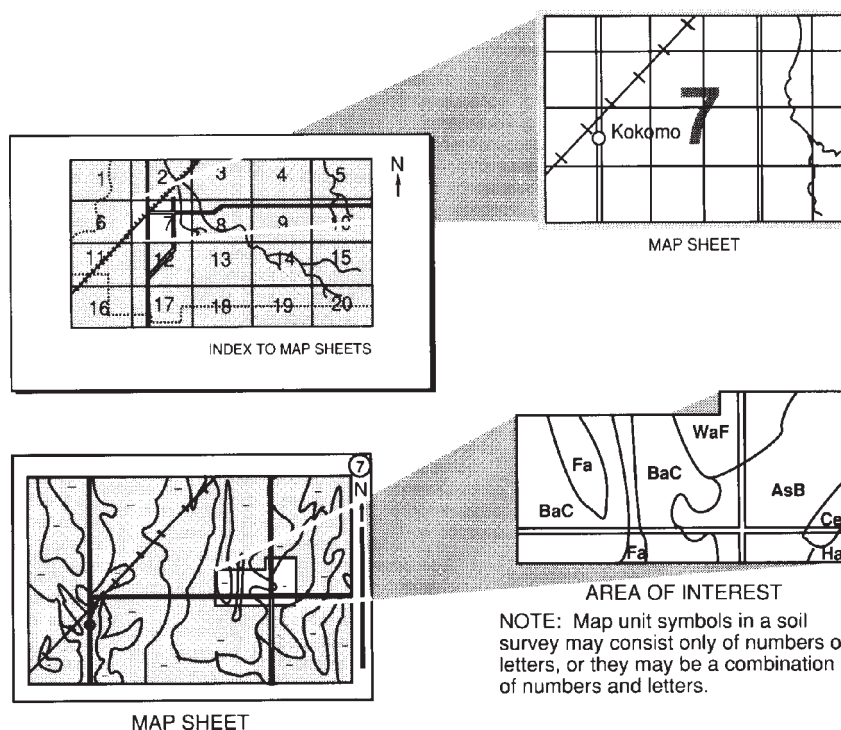
How To Use This Soil Survey

This publication consists of a manuscript and a set of soil maps. The information provided can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



National Cooperative Soil Survey

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey. This survey was made cooperatively by the Natural Resources Conservation Service and the Illinois Agricultural Experiment Station. It is part of the technical assistance furnished to the Macon County Soil and Water Conservation District. Financial assistance was provided by the Macon County Board and the Illinois Department of Agriculture.

Major fieldwork for this soil survey was completed in 2006. Soil names and descriptions were approved in 2007. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2007. The most current official data are available on the Internet (<http://soils.usda.gov>).

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

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Cover Photo Caption

A view of Lake Decatur from Scoville Zoo and Garden. Soils across the lake include Senachwine and Russell soils.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at <http://www.nrcs.usda.gov>.

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8070A—Beaucoup silty clay loam, 0 to 2 percent slopes, occasionally flooded	30
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Foreword

Soil surveys contain information that affects land use planning in survey areas. They include predictions of soil behavior for selected land uses. The surveys highlight soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

Soil surveys are designed for many different users. Farmers, foresters, and agronomists can use the surveys to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the surveys to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the surveys to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://soils.usda.gov/sqi/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each map unit is shown on the detailed soil maps. Each soil in the survey area is described, and information on specific uses is given. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

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Soil Survey of Macon County, Illinois

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Updated fieldwork by Chris Cochran, Ron Collman, Troy Fehrenbacher, Zach Weber, and Hans Winzeler, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with the Illinois Agricultural Experiment Station

MACON COUNTY is in central Illinois (fig. 1). It has an area of 374,920 acres, or about 585 square miles. The county is bordered on the north by De Witt County; on the west by Christian, Logan, and Sangamon Counties; on the south by Christian and Shelby Counties; and on the east by Moultrie and Piatt Counties. Decatur is the county seat. In 2000, the estimated population of Macon County was 114,706. This estimate represents a decrease in population of about 2.1 percent since the 1990 population estimate of 117,206. Decatur, the largest city in the county, had an estimated population of 81,860 in 2000 (U.S. Department of Commerce, 2008).

This soil survey updates the previous survey of Macon County (Doll, 1990). It provides additional information and has larger maps, which show the soils in greater detail. Changes in land use and advancements in technology have resulted in the need for updated soil information and interpretations.

General Nature of the County

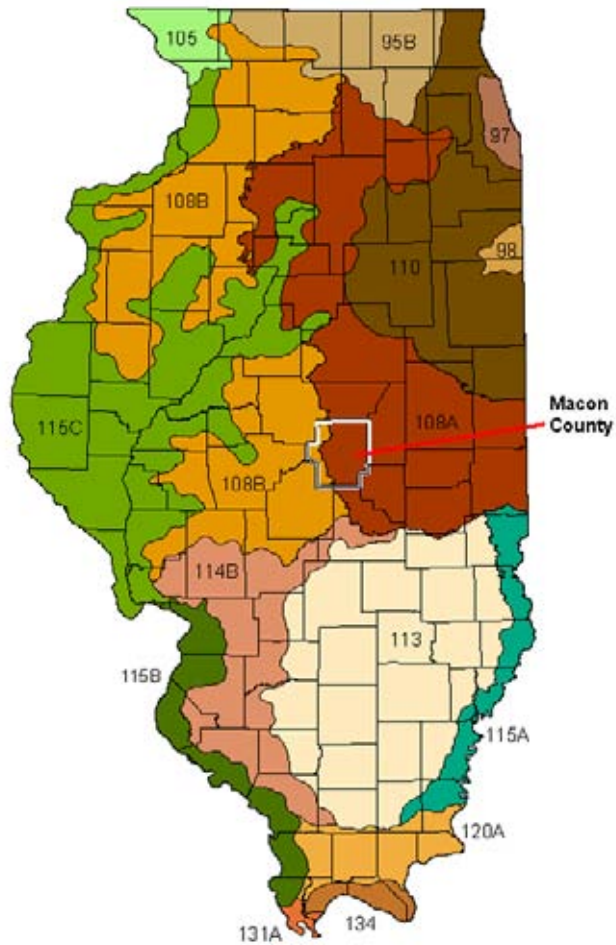
This section provides general information about Macon County. It describes history and development; physiography, relief, and drainage; natural resources; and climate.

History and Development

There is a long history of human occupation in North America. For thousands of years, native people lived in Illinois and across North America. Their environment and the resources available to them influenced the development of their cultures (Illinois State Museum, 2007).

Three hundred years ago, when French explorers first visited this frontier, the natural environment was different from what it is today. At that time, the landscape

Soil Survey of Macon County, Illinois



LEGEND

- 95B—Southern Wisconsin and Northern Illinois Drift Plain
- 97—Southwestern Michigan Fruit and Truck Crop Belt
- 98—Southern Michigan and Northern Indiana Drift Plain
- 105—Northern Mississippi Valley Loess Hills
- 108A and 108B—Illinois and Iowa Deep Loess and Drift
- 110—Northern Illinois and Indiana Heavy Till Plain
- 113—Central Claypan Areas
- 114B—Southern Illinois and Indiana Thin Loess and Till Plain, Western Part
- 115A, 115B, and 115C—Central Mississippi Valley Wooded Slopes
- 120A—Kentucky and Indiana Sandstone and Shale Hills and Valleys, Southern Part
- 131A—Southern Mississippi River Alluvium
- 134—Southern Mississippi Valley Loess

Figure 1.—Location of Macon County and the major land resource areas (MLRAs) in Illinois.

was a patchwork of prairies, forests, marshes, and swamps. Bison, elk, bears, mountain lions, passenger pigeons, and parrots lived in this wilderness along with many of the animals that are still present.

In the early 1700s, the Kickapoo tribe moved south from Wisconsin, pushing other tribes south and east. Before the 18th century, the main tribes in the survey area

were the Illinois tribe of the Peoria group and the Kickapoo. Several treaties from 1803 to 1832 ceded land from the occupying tribes to the United States. Indian tribes in the State then moved to areas that are now the States of Kansas and Oklahoma (Access Genealogy, 2007).

When European immigrants began moving into Illinois, they avoided settling on the prairies and stayed close to the forests and rivers, which provided shelter and transportation. Also, the prairies were wet and difficult to plow with the tools they had.

Macon County was originally part of the Northwest Territory. The first English-speaking American settlement in Macon County was near Friends Creek and the Sangamon River, approximately 8 miles northeast of Decatur. A trading post was built on this site in 1816. Macon County was formed out of Shelby County in 1829. The county was named after Nathaniel Macon, a soldier of the American Revolution and, later, a powerful leader in the United States Congress (Illinois GenWeb Project, 2008).

Decatur was established as the county seat by the same act that established Macon County in 1829. This act was approved by the Illinois General Assembly at the State capital in Vandalia (Illinois GenWeb Project, 2008). Decatur was founded in 1823 and named for Stephen Decatur, Jr., a naval hero of the War of 1812. Decatur was the first Illinois home of Abraham Lincoln, who settled just west of Decatur with his family in 1831. Decatur was also the city where Lincoln received the first endorsement of his candidacy for President of the United States in 1860 ("Decatur, Illinois," 2008).

Travel overland was slow, and flatboats were used as the fastest mode of transportation. The Sangamon River provided an important corridor for travel (Illinois GenWeb Project, 2008).

In 1827, the Cumberland Road (National Road) was expanded into Illinois. Several roads branched off the National Road. One such road was the Paris-Springfield road, which ran across Macon County through Decatur. Wagon trains would eventually help to populate areas away from the rivers. Emigration from many European nations as well as from the eastern United States increased. Rapid settlement occurred along these roads and near major streams. The invention and manufacture of the steel plow was a major breakthrough in agriculture that encouraged settlement and expansion into the prairies. The installation of drainage systems furthered development of the very fertile prairies. The United States Department of Agriculture was established by Abraham Lincoln in 1862.

Another important development for the area was the building of the railroad. From the mid 1850s to about 1900, several companies and incorporations built rail lines through the area. By 1854, several rail lines intersected in Decatur. Thousands of new settlers were attracted to the lands along the Illinois Central and other railways. Many towns developed rapidly at railroad junctions. Railroads provided reliable, inexpensive transportation for Illinois agricultural and industrial products and brought many manufactured goods to Illinois from the East. By 1900, many people had the opportunity to share in the abundance of goods that industry produced (Illinois State Museum, 2007).

Agriculture is the leading industry in Macon County. In 2002, there were 646 farms on 320,646 acres. Farms averaged about 496 acres in size (USDA, National Agricultural Statistics Service, 2008). The market value of agricultural products sold was about \$90.86 million. Corn and soybeans are the main crops. Data for the years 1997-2007 provide the following 10-year averages for Macon County: corn was harvested on about 155,373 acres and yielded 170 bushels per acre; soybeans were harvested on about 133,363 acres and yielded 40 bushels per acre; wheat was harvested on about 1,333 acres and yielded 60 bushels per acre; and hay-alfalfa was

harvested on about 1,390 acres for yields of 3.7 tons per acre. Other hay was harvested on about 2,050 acres and averaged about 2.9 tons per acre (USDA, National Agricultural Statistics Service, 2008). The remaining farmland acreage was devoted to livestock production, including pasture and feedlots, miscellaneous crops, and farm infrastructure (buildings, farm roads, and woodlots) (USDA, National Agricultural Statistics Service, 2008).

The transportation systems in Macon County include Federal and State highways, county and township roads, railroads, and the Decatur airport. Included are Interstate 72; U.S. Highways 36 and 51; State Routes 48, 105, and 121; and several county and township roads, which also provide important transportation links. Macon County has 3 freight rail services and 44 trucking companies. Public transit in Decatur includes city busing. Amtrak passenger rail stations are in nearby Springfield, Lincoln, Champaign, and Mattoon.

Cities, towns, and villages and their populations (as of 2000) include Argenta with 921, Blue Mound with 1,129, Decatur with 81,860, Forsyth with 2,434, Harristown with 1,338, Long Creek with 1,364, Macon with 1,213, Maroa with 1,654, Mount Zion with 4,845, Niantic with 738, Oreana with 892, and Warrensburg with 1,289 (U.S. Department of Commerce, 2008).

Physiography, Relief, and Drainage

Macon County is in central Illinois. It is in the Till Plains section of the Central Lowland Province and lies mostly within the Bloomington Ridged Plain physiographic division (fig. 2). The eastern side of the county, west of the Shelbyville moraine, lies within the Springfield Plain physiographic division. The Bloomington Ridged Plain includes most of the Wisconsin moraines, which are characterized by low, broad concentric ridges with intervening wide stretches of relatively flat or gently undulating ground moraine. The outer boundary of the district follows the outer border of the Shelbyville and Westfield moraines. The Springfield plain includes the level portion of the Illinois drift sheet in central and southern Illinois. It is characterized mainly by its flatness and by relatively shallow entrenchment of drainage (Leighton and others, 1948; Illinois State Geological Survey, 2008).

Illinois has been covered by oceans, shallow seas, beaches, swamps, and ice in the geologic past. The changing conditions created limestone, sandstone, siltstone, shale, coal, oil, and the fertile flat and gently rolling agricultural lands that now characterize the area.

Evidence of the ancient geologic past in Macon County can be found in the natural resources. Sand and gravel pits and deep aquifers that supply municipal water, coal, and oil occur in the county (Illinois State Geological Survey, 2008).

During the Pleistocene Epoch, or ice age, most of Illinois was repeatedly covered by glacial ice. Lobes of ice flowed southward from Canadian centers near the Hudson Bay and moved into the central lowland between the Appalachian and Rocky Mountains (fig. 3). Glacial stages lasted tens of thousands of years, and thick masses of snow and ice accumulated. As the ice thickened, the weight of the ice and snow caused them to flow outward at their margins, commonly for hundreds of miles. Pleistocene glaciers and the waters melting from them changed the landscape. The glaciers reshaped or removed the landforms they overrode, leveling and filling many of the minor valleys and some of the larger ones. Moving ice carried and crushed large amounts of rock and earth as far as hundreds of miles. According to some estimates, the amount of water drawn from the sea and changed into ice during a glaciation was enough to lower the sea level up to 400 feet below present level. Consequently, the melting of a continental ice sheet provided a tremendous volume of water that eroded and transported sediments. Lower sea levels before the ice

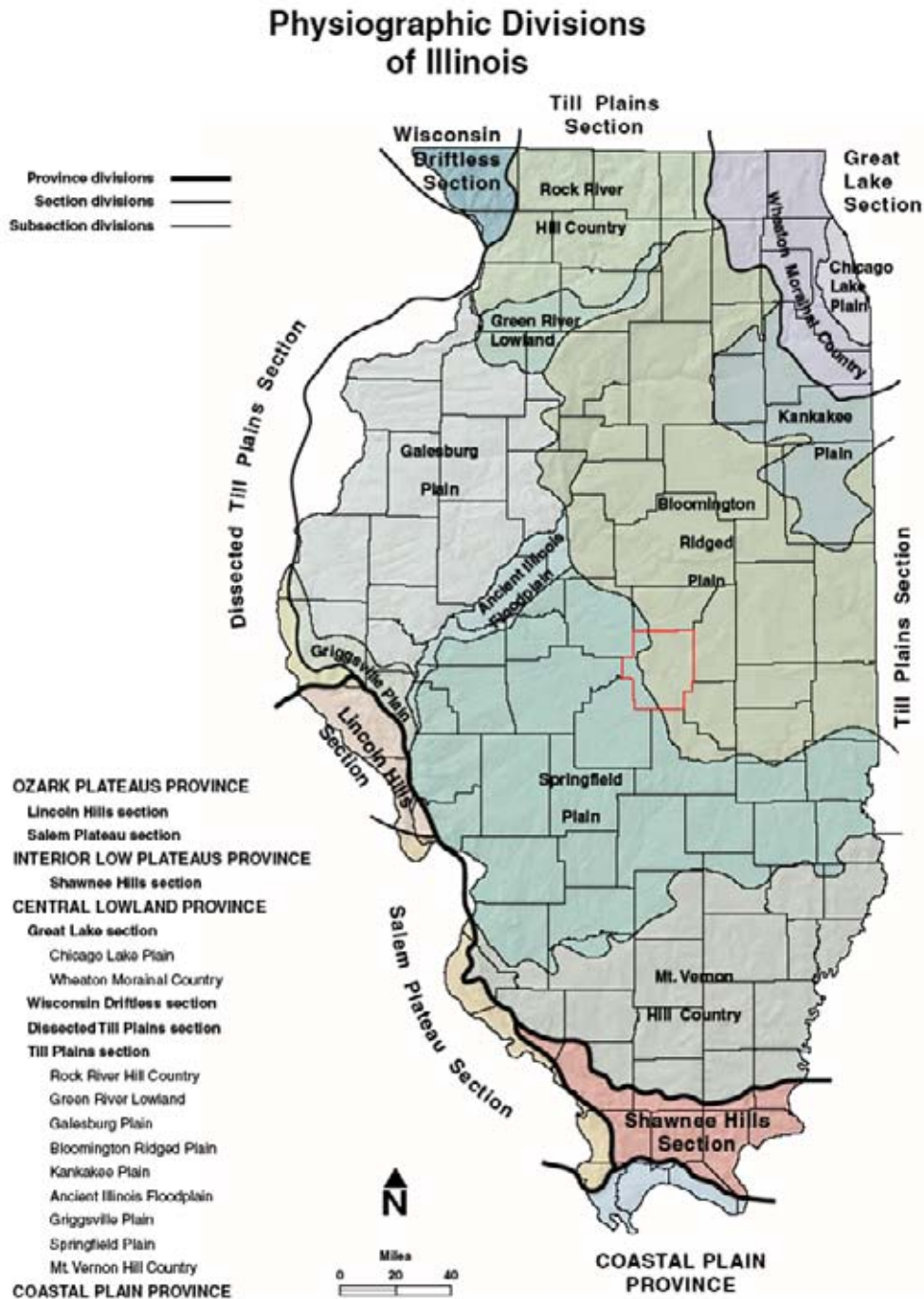


Figure 2.—Physiographic divisions of Illinois (Illinois State Geological Survey, 2008).

melted exposed more land around the boundaries of continents (Illinois State Geological Survey, 2008).

Based on buried soils and glacial deposits, there have been an estimated four to eight separate glaciations in Illinois. According to current scholarship, the major glaciations, in order from youngest to oldest, are the Wisconsinan, Illinoian, and Pre-Illinoian. Evidence of the Illinoian glaciation is along major streams and in steep areas



Figure 3.—The extent of glacial advance in North America (from Killey, 1998).

in western Macon County. Evidence of the Wisconsin glacialiation can be seen throughout Macon County.

In most of Illinois, glacial deposits buried the low, hill-and-valley terrain and created the flatter landforms of the prairies. The materials released from the ice are the parent materials of most of the soils in Illinois. The present soil mantle and the buried deposits of gravel, sand, silt, and clay left by the glaciers cover about 90 percent of the State and have been an important resource.

The last continental glaciers reached their maximum extent about 26,000 radiocarbon years ago. Areas not covered by ice were much like the boreal forest areas in Canada today. Marshes and glacial lakes were common. Because of the

cooler climate, many of the plants and animals that inhabited the area were different from those in the region today. As the ice age ended, the landscape was transformed in general from a boreal forest to a deciduous woodland. Mastodons, mammoths, the giant sloth, and saber-toothed cats roamed the forests and scattered wetlands. About 9,000 years ago the prairie began to replace forests across northern and central Illinois (Illinois State Geological Survey, 2008).

During the Pleistocene, glaciers covered Macon County several times. The present surface materials and landforms are the result of the glacial ice, glacial meltwater, and wind passing over the landscape during the most recent glacial episodes of the Wisconsin and the Illinoian (fig. 4) (Piskin and Bergstrom, 1975).

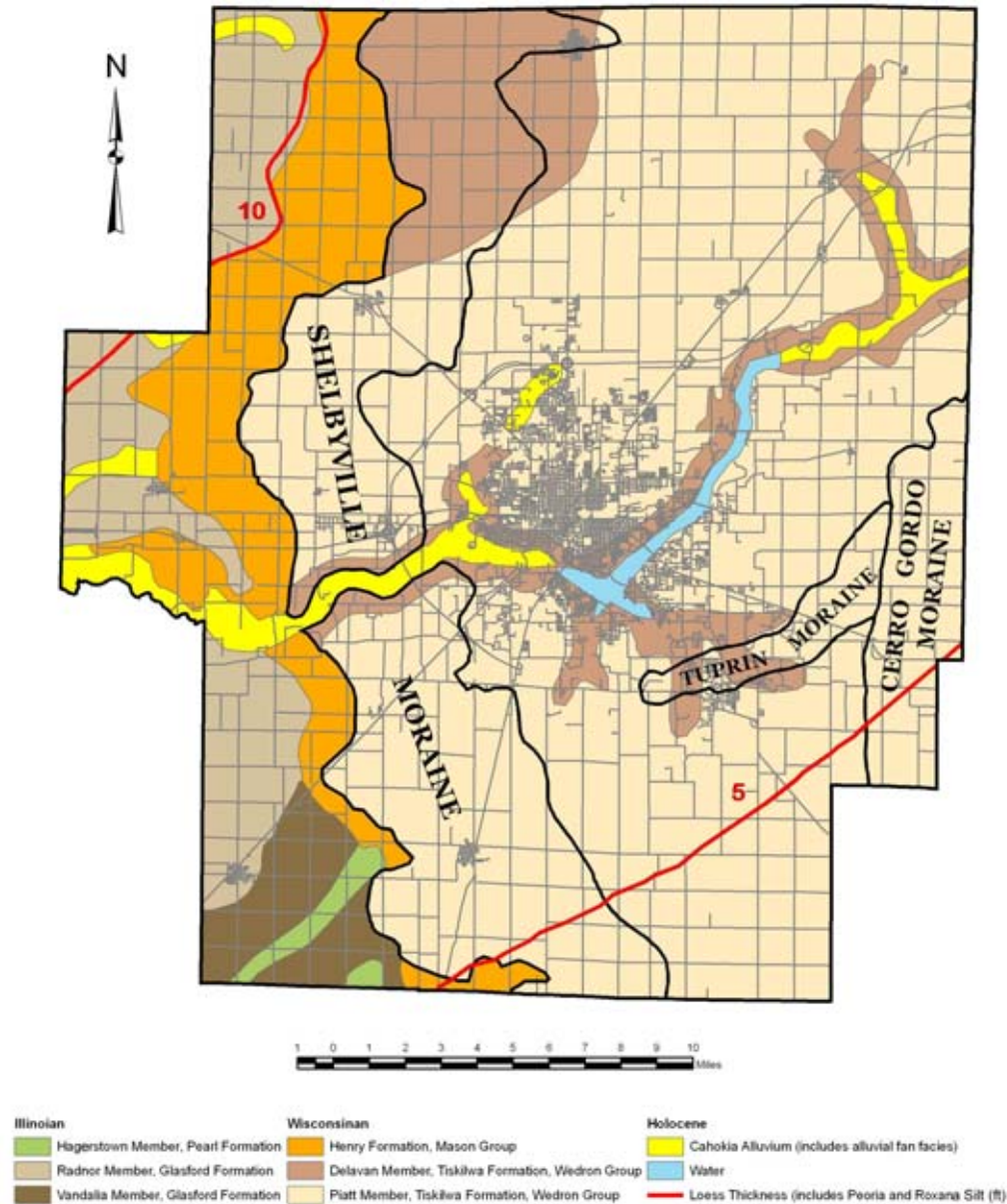


Figure 4.—Quaternary geology of Macon County, Illinois. Source: Data layers modified by USDA/NRCS from the Illinois Department of Natural Resources/Illinois Geographical Information System Digital Data of Illinois (Illinois Department of Natural Resources, 1996; Lineback and others, 1979). Formations renamed based on Illinois State Geological Survey Bulletin 104 (Hansel and Johnson, 1996).

During the Pre-Illinoian and Illinoian Episodes, glaciers deposited drift up to 100 feet thick over Pennsylvanian sandstone, shale, and limestone throughout Macon County. Pre-Illinoian materials and bedrock are relatively deep below more recent deposits and do not outcrop in Macon County.

Illinoian Glasford and Pearl Formations.—The Illinoian materials are within 7 to 12 feet of the surface in some areas in the western and southwestern parts of the county. The Glasford Formation in Macon County has two members—the Radnor Member in the west and the Vandalia Member in the Blue Mound area of the southwestern part of the county. The Radnor Member is a yellowish brown or brown to dark gray clay loam, silty clay loam, or loam diamicton that is characterized by a high content of illite. It is commonly interbedded with sand and silt. The Vandalia Member is a gray sandy diamicton, a mixture of coarse and fine material, with thin layers of silt, sand, and gravel. It includes uniform layers of till (with lenses of silt or sand) that average 25 to 50 feet in thickness across much of the upland. The material is calcareous, except where it has weathered.

As the Illinoian glaciers melted, outwash was deposited. Well sorted and well bedded sand and gravel commonly overlie the Illinoian till in southwestern Macon County. These Illinoian deposits are identified as the Hagerstown Member of the Pearl Formation. They occur in the form of eskers, kames, or crevasse fillings in the area. A long narrow ridge extends from southwestern Macon County into the central part of Christian County. Other small areas of Illinoian deposits also have been identified.

The Sangamon Geosol developed in these Illinoian materials or in other Illinoian sediments. The Sangamon Geosol is represented by a weathered zone several feet thick below the modern soil. Where the geosol is within 5 feet of the ground surface, it becomes a part of the modern soil.

Wisconsinan Wedron and Mason Groups.—During the Wisconsinan Episode, glaciers crossed into the survey area and deposited till and outwash. Wisconsinan materials are in the Wedron Group, which is further divided. The Shelbyville End Moraine marks the extent of Wisconsinan glaciers in Illinois. It is mostly within the Piatt Member of the Tiskilwa Formation of the Wedron Group. A small part of the moraine near the northern boundary of Macon County is part of the Delavan Member of the Tiskilwa Formation. A narrower moraine along the eastern edge of Macon County is the Cerro Gordo Moraine. This moraine is entirely in the Piatt Member of the Tiskilwa Formation. The Tiskilwa Formation is the oldest and lowermost diamicton unit of the Wisconsinan Episode. The Piatt Member is the upper diamicton facies of the Tiskilwa Formation. The Piatt Member consists of gray loam diamicton that commonly has a pink or violet cast and contains lenses of sorted sediment. It was deposited approximately between 19,000 and 18,500 radiocarbon years ago. The Delavan Member consists of calcareous, brownish gray loam diamicton that contains lenses of gravel, sand, silt, or clay. The average thickness of this member in Macon County is about 100 feet. This material was deposited between 26,000 and 18,500 radiocarbon years ago (Hansel and Johnson, 1996).

The Henry Formation of the Mason Group consists of Wisconsinan glacial outwash, predominantly sand and gravel, that occurs above the Sangamon Geosol. It is either at or near the surface and is typically covered by loess (Willman and Frye, 1970). There are three informal facies of the Henry Formation in Macon County. A terrace system formed by the Mackinaw facies of the Henry Formation parallels the presentday Sangamon River (Hansel and Johnson, 1996). The material in this area is characterized by sandy gravel or pebbly sand outwash deposited in valleys and has more uniform textures than other members of the Henry Formation or facies (Hansel and Johnson, 1996). These sediments were deposited predominantly during the late Wisconsinan Episode as the Wisconsinan glaciers were retreating from northern Illinois. These deposits are a very good source of sand and gravel. The Batavia facies of the Henry Formation consists of an outwash plain that skirts along the leading

edge of the terminal moraine of the Wisconsin Episode (Shelbyville Moraine). This outwash is typically stratified sand and silt with minor amounts of gravel (Hansel and Johnson, 1996). Windblown sand occurs in areas along the Sangamon River. These areas are called the Parkland sand facies of the Henry Formation. Outwash areas are commonly pockmarked with small to large gravel pits. The thickness of the outwash varies, depending on location.

Loess of the Mason Group.—Peoria Silt, also known as loess, or windblown silt, blankets most of the uplands in the county and is at land surface everywhere, except where it has been eroded or buried by younger alluvium. It is as much as 10 feet thick on the bluffs along the Sangamon River and is less than 4 feet thick at the eastern margin of the county and in sloping areas. The Peoria Silt was deposited about 25,000 to 12,500 radiocarbon years ago.

Roxana Silt lies below the Peoria Silt and above the Sangamon Geosol on the Glasford Formation. Roxana Silt typically is silty and has properties of leached and oxidized loess. In areas where this formation is thin (less than 3 feet thick), the silt mixes with the sandier underlying drift material and is referred to as the sandy silt facies. The Roxana Silt was deposited about 55,000 to 27,000 radiocarbon years ago (Leigh and Knox, 1993). A paleosol, identified as the Farmdale Geosol, developed in this material. In places where geologic erosion was minimal, this paleosol is still evident. Roxana Silt is commonly mixed with overlying and underlying materials and is difficult to identify (Fehrenbacher and others, 1986; Follmer, 1982; Hansel and Johnson, 1996).

Holocene Deposits (Cahokia Formation).—The Cahokia Formation consists mainly of “recent alluvium” represented by mixed or stratified silt, clay, and sand on modern flood plains. Its thickness varies greatly but rarely exceeds 50 feet. The surface of the formation typically is the surface of the flood plain and the modern soil. In places this formation is covered by windblown sand, loess, or colluvium from side slopes (Willman and others, 1975).

The relief in Macon County is low in most of the upland areas (fig. 5). The greatest change in elevation is in areas along major drainageways and terminal moraines. The highest elevation in the county is slightly more than 745 feet above sea level, near the town of Long Creek on the Cerro Gordo Moraine. The lowest elevation is approximately 560 feet above sea level at the point where the Sangamon River exits the county (Illinois State Geological Survey, 2008). Figure 6 depicts topographic

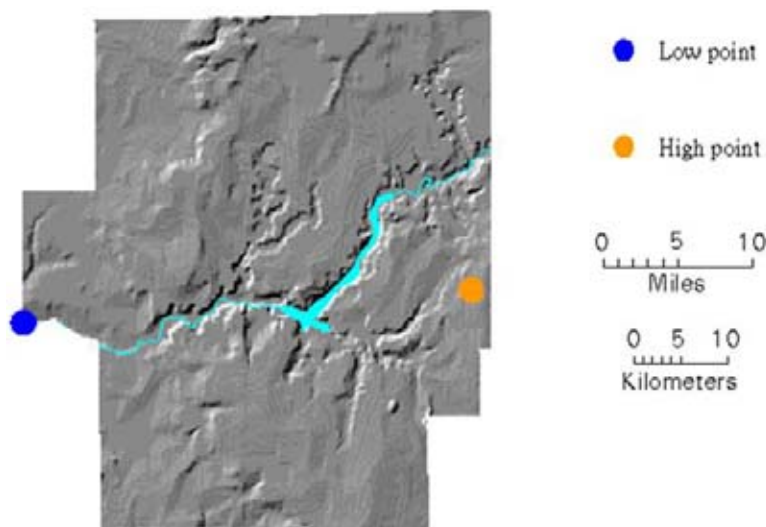


Figure 5.—Shaded relief map showing the highest and lowest elevations in Macon County, Illinois. (Source: Illinois State Geological Survey, 2008, <http://www.isgs.uiuc.edu/education/hi-low/hilow-intro.shtml>)

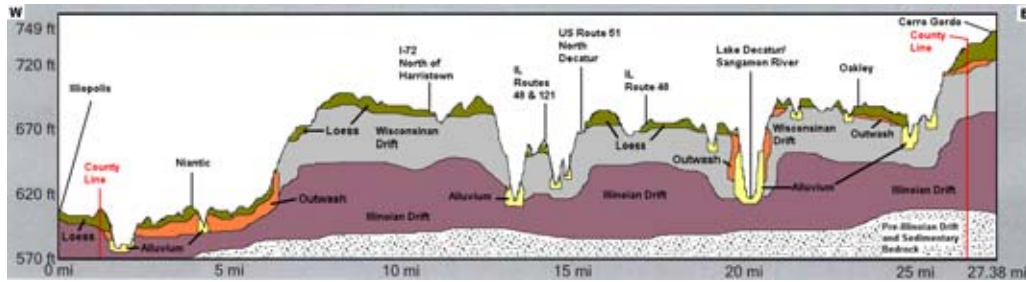


Figure 6.—Elevation cross-section of Macon County, Illinois, from west to east through Niantic, Decatur, and Oakley. Source: 3-D Topoquads Copyright 1999 DeLorme Yarmouth, ME 04096; Datum NAD 27.

changes along a straight line across the county from west to east through Niantic, Decatur, and Oakley. The geologic materials and their thicknesses are drawn in for conceptual and illustrative purposes and do not represent actual measurements taken along this transect.

Friends Creek, the North and South Forks of Lake Fork Creek, Stevens Creek, Willow Branch, Mosquito Creek, Spring Creek, Dry Branch, Sand Creek, Long Creek, and Finley Creek are tributaries of the Sangamon River, which drains the county. The flood plains along the Sangamon River and its tributaries generally are flooded annually, and many of the soils in these areas have a seasonal high water table. Most areas are sufficiently drained for the crops commonly grown in the county. Subsurface tile drains or surface ditches have been installed in fields across the county. Urbanization has altered the natural drainage in some areas.

Natural Resources

Extracted natural resources in Macon County include oil, gas, sand, and gravel. Soil also is a very valuable natural resource. It serves as a growing medium for plants, a surface to build upon, a filter for waste products, and a sink for carbon and provides storage for excess rainwater. Forests and woodlots, surface water impounded as lakes and ponds, sand and gravel aquifers, and bedrock aquifers also are among the natural resources in Macon County (fig. 7).

The soils in Macon County range from low to high in natural fertility, and, with the addition of fertilizer and lime, most are well suited to the cultivation of crops, particularly corn and soybeans. Many of the soils are nearly level or gently sloping and formed in medium textured material under prairie grass or under wooded or mixed wooded vegetation. Combined with a favorable climate, these factors result in good potential for highly productive farmland.

At the time of settlement, about 13 percent of the county, or 48,300 acres, was forested. About 15,600 acres in Macon County is still woodland (fig. 8). Most of the woodland is along the major streams and their tributaries. Woodland remains in these areas primarily because excessive slope, low fertility, flooding, and undesirable materials in the substratum make them less than ideal farmland. Woodland provides important areas of wildlife habitat, watershed protection, and recreational areas (Iverson and others, 1989).

The county has approximately 4,680 acres of impounded water. Lake Decatur, the largest single body of impounded water, is about 3,028 acres (fig. 9). The remaining 1,652 acres of impounded water is in about 305 small lakes, farm ponds, and miscellaneous water bodies scattered throughout the county. Gravel pit ponds along major streams also are included in this total acreage.



Figure 7.—A sand and gravel pit along the Sangamon River. Associated soils are Plano and Proctor soils. Some areas of these soils are subject to flooding or are adjacent to flood plains.

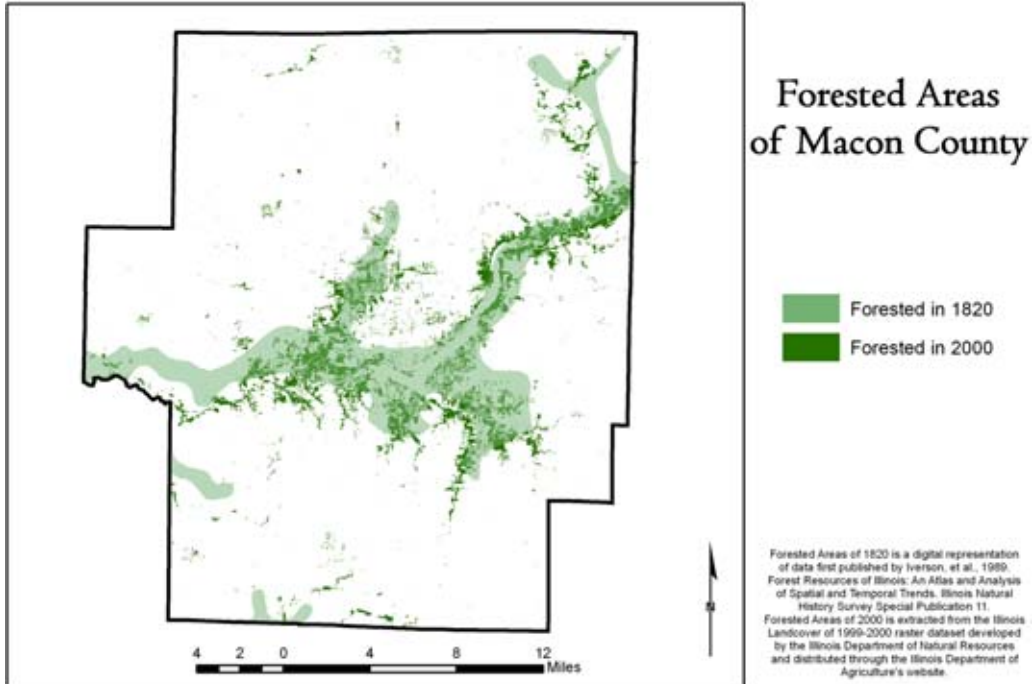


Figure 8.—Areas of Macon County in forestland in 1820 and 2000 and the extent of prairie soils. Soils that formed under forest vegetation typically have a light-colored surface layer, and soils that formed under prairie vegetation have a dark surface layer.



Figure 9.—Lake Decatur is the main water supply for Decatur and the surrounding areas. The lake and nearby areas provide many recreational opportunities, including boating, fishing, golf, hiking, and biking.

Potential aquifers are in areas underlain by sand and gravel. Sand and gravel deposits are in the fill of river valleys, in buried bedrock valleys, and where outwash lies in front of the Shelbyville and Cerro Gordo Moraines (Illinois State Geological Survey, 2008). These areas are tapped for water supplies for small municipalities and rural residents. The cities of Decatur and Mt. Zion rely on surface water from Lake Decatur. Argenta, Blue Mound, Forsyth, Harritown, Long Creek Township, Macon, Maroa, Niantic, Oreana, and Warrensburg rely on protected wells for their water supplies. Rural areas also rely on water districts or private wells (Illinois Environmental Protection Agency, 2008).

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Decatur in the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 29.4 degrees F and the average daily minimum temperature is 20.7 degrees. The lowest temperature on record, which occurred at Decatur on February 13, 1905, is -25 degrees. In summer, the average temperature is 74.3 degrees and the average daily maximum temperature is 86.0 degrees. The highest temperature, which occurred at Decatur on July 14, 1954, is 113 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average

temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual total precipitation is 39.68 inches. Of this total, 23.6 inches, or about 59 percent, usually falls in April through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 5.11 inches at Decatur on July 26, 1992. Thunderstorms occur on about 46 days each year, and most occur in July.

The average seasonal snowfall is 21.5 inches. The greatest snow depth at any one time during the period of record was 22 inches recorded on December 20, 1973. On an average, 30 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 13.5 inches recorded on March 19, 1906.

The average relative humidity in midafternoon is about 61 percent. Humidity is higher at night, and the average at dawn is about 84 percent. The sun shines 70 percent of the time possible in summer and 48 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 13 miles per hour, in March.

How This Survey Was Made

Land resource regions (LRRs) and their component major land resource areas (MLRAs) serve as a basis for making decisions about national and regional agricultural and natural resources issues. These land categories group geographical areas that are characterized by a particular pattern of soils, climate, water resources, and land use. Major land resource areas are geographically associated land resource units that share a common land use, elevation, topography, climate, water, soils, and potential natural vegetation (USDA/NRCS, 2006). Macon County, Illinois, is in land resource region M, Central Feed Grains and Livestock Region, and in MLRAs 108A (Illinois and Iowa Deep Loess and Drift, Eastern Part) and 108B (Illinois and Iowa Deep Loess and Drift, East-Central Part) (fig. 1).

Soil surveys are updated as part of maintenance projects that are conducted for an MLRA or other region. Maintaining and coordinating soil survey information within a broad area result in uniformly delineated and joined soil maps and in coordinated interpretations and map unit descriptions for areas within each MLRA.

Updated soil survey information is coordinated within the MLRA or other region and meets the standards established and defined in the memorandum of understanding. Soil surveys that are consistent and uniform within a broad area enable the coordination of soil management recommendations and a uniform program application of soil information.

This soil survey was made to provide updated information about the soils and miscellaneous areas in Macon County. Map unit design and the detailed soil descriptions are based on the occurrence of each soil throughout an MLRA. The information in this survey includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses.

Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; and the kinds of crops and native plants. Soil scientists used soil probes or spades to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. Soil horizons differ in a number of easily seen soil properties, such as color, texture, structure, and thickness. Laboratory testing is used to determine properties, such as chemical and mineral content, bulk density, and pH.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of

landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landform.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

The soil survey information in this publication was based on a review of field notes, laboratory data, and other data collected during the previous soil survey of Macon County (Doll, 1990). In addition, data from other soil surveys within MLRAs 108A and 108B were reviewed. Selected soils were resampled to a greater depth than that studied in the previous survey. Reviewing data on a regional basis can result in improved consistency in the identification, classification, and interpretations of soils on similar landscapes.

Soil Survey of Macon County, Illinois

Aerial photographs used in this survey were taken in 1998 and 1999. Soil scientists also studied U.S. Geological Survey topographic maps (enlarged to a scale of 1:12,000) and orthophotographs to relate land and image features. Specific soil boundaries were drawn on the orthophotographs. Adjustments of soil boundary lines were made to coincide with the U.S. Geological Survey topographic map contour lines and tonal patterns on aerial photographs.

Formation and Classification of the Soils

This section relates the soils in the survey area to the major factors of soil formation and describes the system of soil classification.

Factors of Soil Formation

Soil is produced by soil-forming processes acting on materials deposited or accumulated by geologic agents. The characteristics of the soil are determined by (1) the physical and mineralogical composition of the parent material; (2) the climate under which the soil formed; (3) the plant and animal life on and in the soil; (4) the relief, or lay of the land; and (5) the length of time the forces of soil formation have acted on the parent material (Jenny, 1941).

Climate and plant and animal life are the active factors of soil formation. They act directly on the parent material, either in place or after it has been relocated by water, glaciers, or the wind. They slowly change the parent material to a natural body that has genetically related layers, or horizons. The effects of climate and plant and animal life on soil formation are modified by relief. In sloping areas, for example, erosion can inhibit the processes of soil formation. Wetness can slow these processes in level areas or depressions. Parent material also affects the kind of soil profile that is formed. Finally, time is needed for changing the parent material into a soil profile that has clearly differentiated horizons.

The factors of soil formation are so closely interrelated in their effects on the soil that few generalizations can be made regarding the effects of any one factor unless the effects of the other factors are known. Many of the processes of soil formation are unknown.

Parent Material

Parent material is the unconsolidated material in which a soil forms. It determines the chemical and mineralogical composition of the soil. Most of the parent material in Macon County is a direct result of the glaciers and sediments of the Illinoian and Wisconsinan age (Willman and Frye, 1970). Although the kinds of parent material are associated with glacial deposits, the properties vary greatly, mostly because of varying methods of deposition. The dominant kinds of parent material in Macon County are till, outwash, loess, and alluvium. These materials were deposited by wind, water, glaciers, and glacial meltwater. In some areas, the materials have been reworked by wind or water after they were deposited. Many of the soils formed in more than one kind of parent material. For example, many of the soils in Macon County formed in loess and in the underlying outwash or till.

Till is material laid down directly by glaciers. It consists of clay, silt, sand, gravel, and boulders, all of which are mixed together. Unweathered till is generally alkaline, calcareous, and very dense. Through the processes of soil formation, the upper 1 to 2 meters of the till that is exposed to biological activity becomes less alkaline and less dense. Senachwine soils are examples of soils that formed in till (fig. 10).

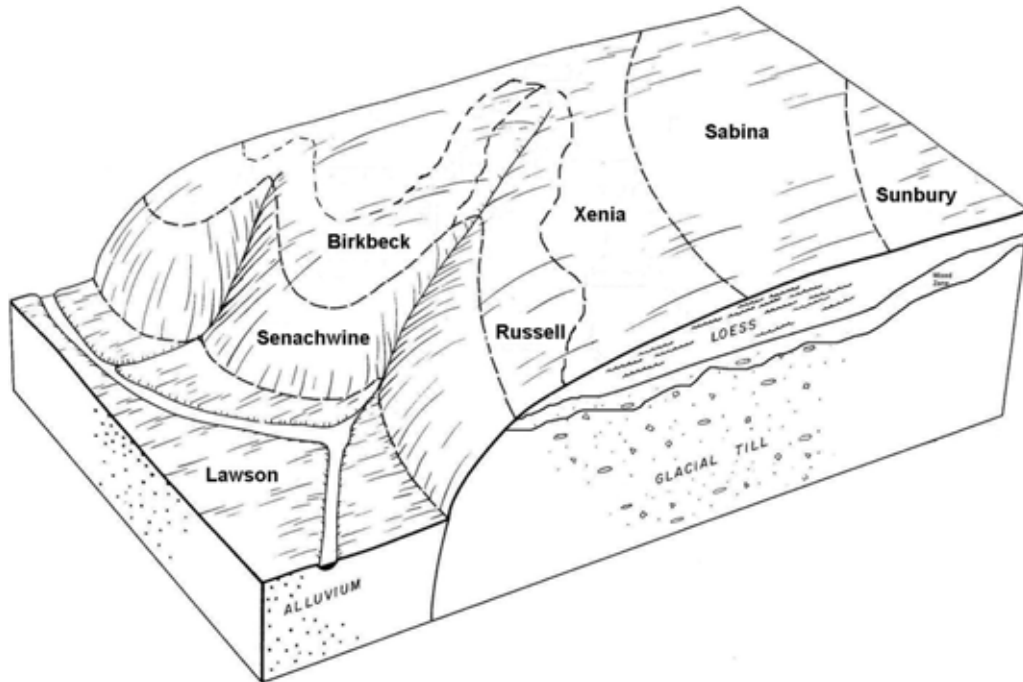


Figure 10.—A diagram showing the relationships among soils, landscape, and parent material in dissected areas along major tributaries of the Sangamon River.

Outwash is stratified material deposited by flowing glacial meltwaters. The size of the particles that make up outwash varies, depending on the velocity of the moving water. Typically, outwash is dominated by material that is fine sand or coarser. The coarser material was deposited nearer to the ice or in rapidly moving glacial meltwater streams. Most of the outwash deposits were later covered by loess. In Macon County, coarse outwash material occurs in glacial valley areas now dominated by stream terraces or on small kames or eskers. Stratified, medium textured outwash material was deposited on an outwash plain all along the leading edge of the Shelbyville and Cerro Gordo moraines. Camden, Starks, and Brooklyn soils are examples of soils that formed in loess and in the underlying stratified outwash on outwash plains. Sparta soils are examples of soils that formed in outwash along valley trains on outwash terraces. Broadwell soils are on bluffs and outwash terraces above the flood plain along the Sangamon River.

Peoria Silt, or loess, is material deposited by the wind. It consists of uniform silt-sized particles that were calcareous before they were acted upon by leaching. The meltwaters from the glaciers carried vast quantities of silt, which were deposited in the major river valleys. As these sediments were exposed when the meltwaters subsided, winds carried these silts and deposited them over much of the land. Most of the soils in the county formed at least partially in the nutrient-rich loess. The thickness of the loess ranges from virtually zero in areas where slopes are very steep to more than 80 inches. Buckhart, Clarksdale, Ipava, Osco, and Sable soils are examples of soils that formed in more than 80 inches of loess (fig. 11). Birkbeck, Blackberry, Camden, Catlin, Drummer, Flanagan, Milford, Raub, and Wingate soils are examples of soils that formed in loess over other materials within a depth of 80 inches (fig. 12). Peotone, Shiloh, and Harpster soils formed in mixed loess and colluvial sediments.

The sandy silt facies of the Roxana Silt Formation is material composed of mixed silty and loamy sediment from loess and drift material. It typically lies below Peoria

Soil Survey of Macon County, Illinois

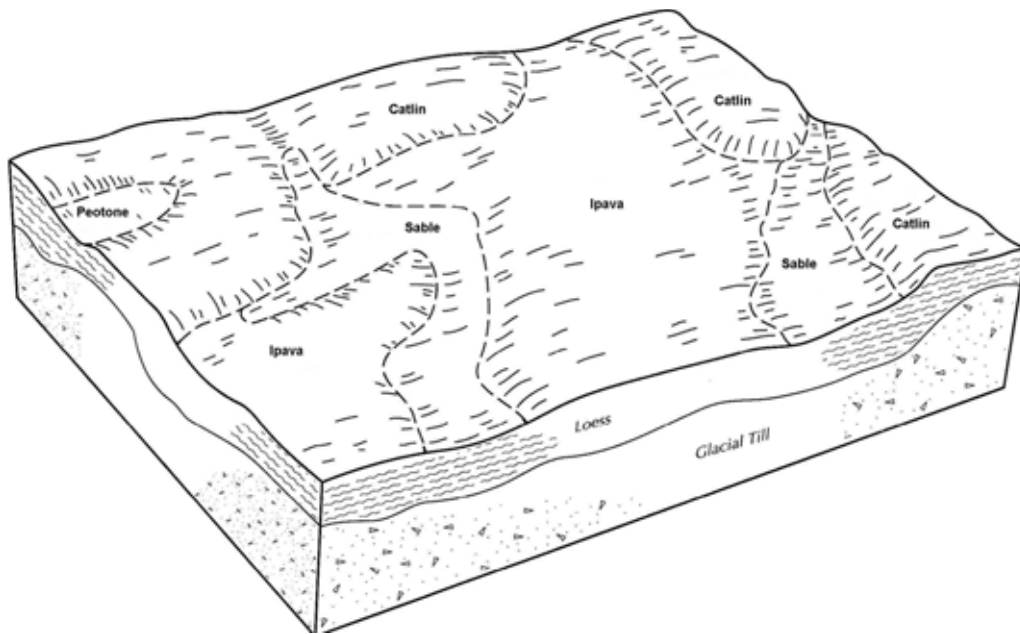


Figure 11.—A diagram showing the relationships among soils, landscape, and parent material in north-central Macon County.

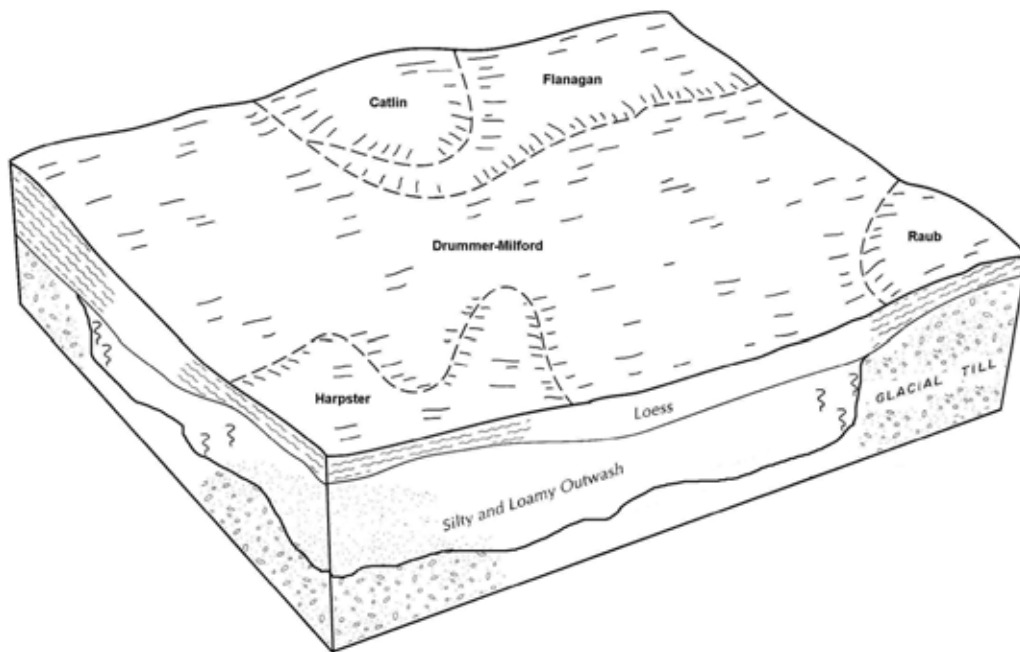


Figure 12.—A diagram showing the relationships among soils, landscape, and parent material in southeastern Macon County.

Silt and above the Illinoian till in a soil profile. It is commonly weathered and may show signs of stratification, compaction, paleo-development, rock structure, or mixing with adjacent parent material layers. This parent material is not common in Macon County (Fehrenbacher and others, 1986; Follmer, 1982).

Alluvium is material that was deposited by floodwater from modern streams. Soils that formed in alluvium are generally stratified in both color and texture. The alluvial soils mostly consist of silty sediments, but in some places the soils have thin layers of loamy and sandy material. Ross soils formed in loamy alluvium. Huntsville, Sawmill, Tice, and Wakeland soils are examples of soils that formed in silty sediments. Wabash soils formed in clayey sediment. These soils occur on active flood plains and are relatively younger than many of the other soils in the county. Consequently, these soils have a weakly developed subsoil. The largest areas of alluvial soils are along the Sangamon River and its tributaries (fig. 13).

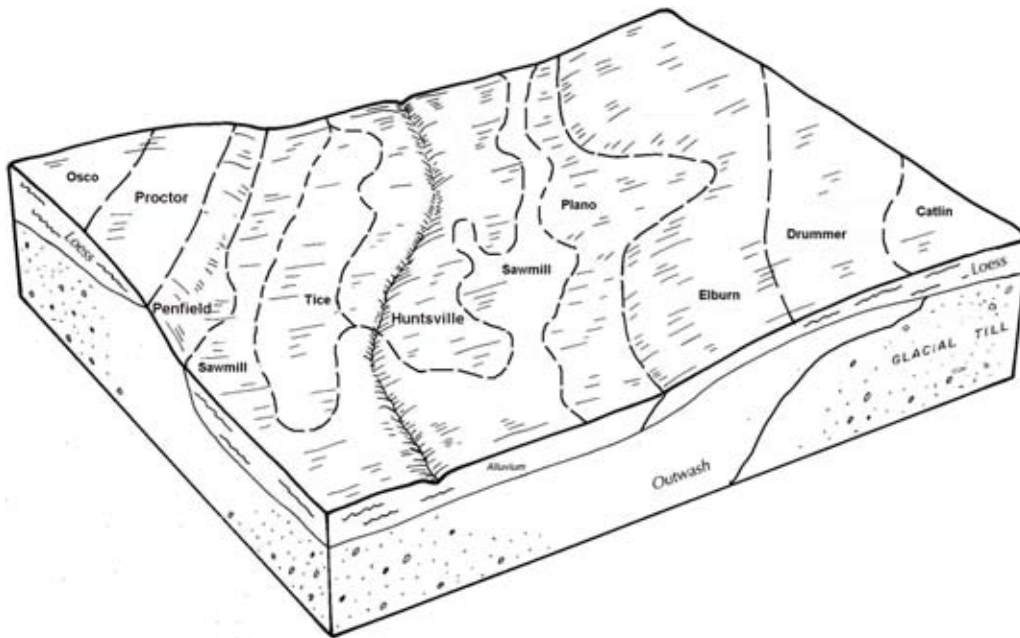


Figure 13.—A diagram showing the relationships among soils, landscape, and parent material on the Sangamon River valley terraces and flood plains in western Macon County.

Climate

Macon County has a temperate, humid, continental climate that is essentially uniform throughout the county. Climatic differences within the county are too small to have caused any obvious differences among the modern soils that have formed in the last few thousand years. The influence of climate becomes more obvious, however, when comparisons are made on a broad regional basis or between modern soils and buried soils, or paleosols.

Climate affects soil formation through its effects on weathering, plant and animal life, and erosion. Cold temperatures, for example, cause many of the processes of soil formation to be halted or restricted. Water from rains and melting snow seeps slowly downward through the soil and allows physical and chemical reactions to take place in the parent material. Where the water can move downward, it moves clay from the surface soil into the subsoil. Water also dissolves minerals and moves them downward through the soil. In soils that formed in limy parent material, leaching has

removed calcium carbonate in the upper part of the profile to a depth of more than 40 inches in most of the survey area. As a result, other pedogenic processes act on the soil, causing the biochemical breakdown of minerals and the translocation of clay. In addition, with the removal of bases, these soils tend to be strongly or very strongly acid in the upper part.

Climate also influences the kind and extent of plant and animal life. The climate in Macon County has favored tall prairie grasses and deciduous hardwoods. It also has favored the decomposition of plants and animals, which provides humus to the soil.

Heavy, untimely rains can be destructive when they interact with soils that are bare of vegetation. The raindrops disperse the soil particles, thereby contributing to erosion and the formation of crusts. Increased runoff during early spring rains in these areas can cause extensive erosion.

Plant and Animal Life

Soils are greatly influenced by the type of vegetation under which they formed. The chief contribution of vegetation and biological processes to soil formation is the addition of organic material and nitrogen to the soil. The amount of organic material in the soil depends primarily on the kind of native plants that grew on the soil. The remains of plants that accumulated on or below the surface decayed and eventually became soil organic matter, or humus. The roots of the plants provided channels for the downward movement of water through the soil and added organic matter as they decayed.

The native vegetation in Macon County consisted primarily of tall prairie grasses and deciduous hardwoods. At the time of early settlement, about 87 percent of the county supported prairie grasses (Iverson and others, 1989). These grasses have many fibrous roots that contribute large amounts of organic matter to the soil, especially where they were concentrated near the surface. Soils that formed under prairie vegetation have a thick, black or dark brown surface layer. They generally are in areas of low relief and/or areas where the soils were naturally poorly drained or somewhat poorly drained. Drummer, Flanagan, Shiloh, and Spaulding soils are examples of soils that formed on the prairie.

About 13 percent of the county supported timber at the time of early settlement (Iverson and others, 1989). The organic material contributed to the soil by deciduous hardwoods was mainly in the form of leaf litter because the root systems of the hardwoods are less fibrous than those of grasses and generally are not so concentrated near the surface. The soils that formed under forest vegetation have a surface layer that is thinner and lighter colored than that of the prairie soils. Camden, Elco, Rozetta, and Senachwine soils are examples of soils that formed under forest vegetation. They generally are along drainageways, on summits of interfluvies, and on backslopes.

Micro-organisms, earthworms, insects, and burrowing animals that live in or on the soil also have affected soil formation. Bacteria and fungi help to decompose plant and animal remains and change them into humus. Burrowing animals, such as earthworms, cicadas, crayfish, and ground squirrels, help to incorporate the humus into the soil and create small channels that influence soil aeration and the percolation of water (fig. 14). Humus is very important in the formation of soil structure and the development of good tilth.

Human activities, such as installing subsurface drains, building levees for flood protection, establishing new construction, and land clearing, have significantly altered the nature of the existing plant and animal communities in the soil ecosystem. These activities have had a direct impact on soils, including increases in loss of soil material and organic material through accelerated erosion as well as changes in drainage.



Figure 14.—This krotovina, or animal burrow, was once home to a crayfish.
Pictured is an area of Shiloh silty clay loam, 0 to 2 percent slopes.

Conservation efforts have had significant and positive effects on the soil landscape and on soil health.

Relief

Relief, or local changes in elevation, has markedly influenced the soils in Macon County through its effect on runoff, erosion, deposition, and natural drainage. Relief includes landform characteristics, such as position on the landform, slope gradient, slope shape, and slope aspect.

Variations in relief in the county reflect the variety of landforms. The most extensive landforms in the county are ground moraines, end moraines, stream terraces, outwash plains, and flood plains.

Ground moraines generally consist of broad, nearly level and gently sloping interfluvies. The relief on ground moraines is less variable than that along tributaries of major streams and rivers. These areas are dominated by such soils as Catlin and Flanagan soils. Where ground moraine is incised by tributaries of major streams and rivers, Birkbeck, Sunbury, and Sabina soils are some of the prevalent soils.

End moraines mark a point where the glacier halted its advance. They generally are strongly sloping to very steep. Six major moraines extend from west to east across Macon County. Senachwine, Russell, and Xenia soils commonly occur on these landforms.

Stream terraces occur primarily along the Sangamon River and its tributaries. They are generally nearly level and gently sloping areas that lie above adjacent flood plains. Camden, Brooklyn, Elburn, and Plano soils occur on stream terraces in the county.

Outwash plains are nearly level to sloping landforms that generally occur at the leading edge of a moraine. Brooklyn, Drummer, Plano, and Proctor soils are examples of soils in these areas.

In areas where the parent material is relatively uniform, differences in natural drainage are closely related to landform position, such as summit, backslope, or toeslope, and to slope gradient and slope shape. Camden and Drummer soils, for example, both formed in loess and in the underlying outwash. Drummer soils are on toeslopes. The slopes are nearly level and are commonly concave. Precipitation and runoff from the higher adjacent soils contribute to the ponding of surface water on the poorly drained Drummer soils. The water in the saturated soil pores restricts the circulation of air in the soil. Under these conditions, naturally occurring iron and manganese compounds are chemically reduced. The reduced form of iron and manganese is more soluble than the oxidized form and can be leached readily from the soil, leaving the subsoil with a grayish color. Camden soils, conversely, are well drained and are on gently sloping summits and backslopes that are convex. The water table is lower in the Camden soils, and some of the rainfall runs off the more sloping surface. The soil pores in the Camden soils contain less water and more air. The iron and manganese compounds are well oxidized, resulting in a brownish subsoil. Figure 15 illustrates the effect of relief on soil properties.

Relief also affects the susceptibility to and intensity of both geologic and recent accelerated erosion. Soils on the steeper slopes and in areas where slopes are long are more susceptible to erosion than soils that formed in nearly level or level areas or where slopes are short. Maintaining a cover of vegetation or plant residue on much or all of the soil surface can significantly reduce the hazard of erosion resulting from relief. For example, Senachwine soils that have slopes of 18 to 60 percent generally support trees, herbaceous plants, and grasses. Because of the vegetative cover, these soils are susceptible to little or no erosion. Most areas of Senachwine soils that have slopes of 5 to 18 percent are cultivated. Failure to maintain erosion-control systems on these soils has resulted in moderate or severe accelerated erosion of the surface soil. The loss of surface soil material in one place results in deposition and accumulation in another place, affecting both the rate of soil formation and the development and thickness of soil horizons.

Time

To a great extent, time determines the degree of profile development in a soil. The amount of time available for soil development is strongly influenced by the degree and amount of erosion or deposition of material at any given point in the county.

The differences among soils resulting from the length of time that the parent material has been in place are commonly expressed in the degree of profile development. Sawmill soils have a very weakly expressed profile because they are

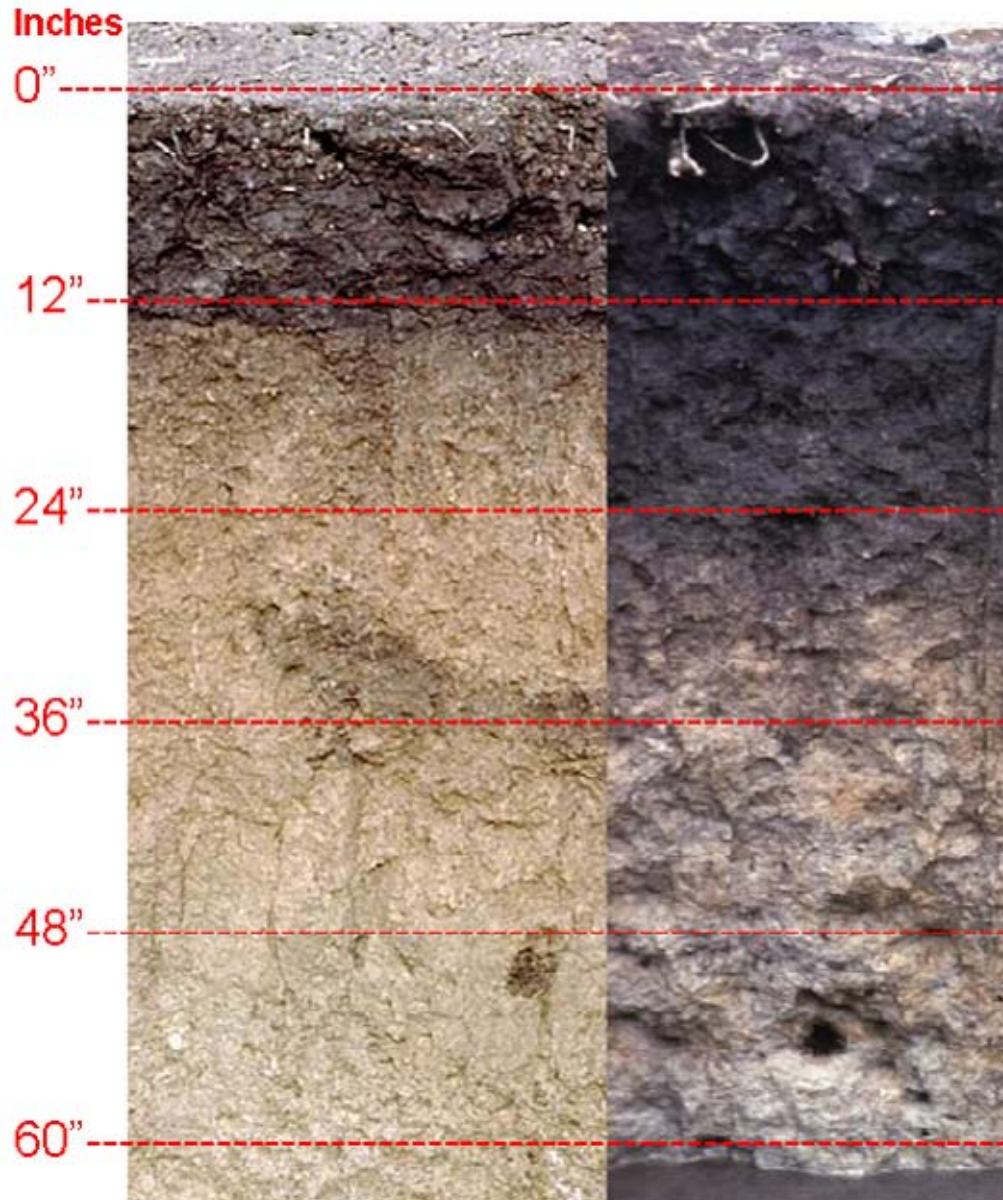


Figure 15.—Soil profiles can indicate many things about the site and the conditions under which the soils formed. On the left is a profile of the well drained Osco silt loam, 2 to 5 percent slopes, and on the right is a profile of the poorly drained Sable silty clay loam, 0 to 2 percent slopes. Both soils formed in more than 60 inches of loess. Both formed under grass vegetation, as indicated by a dark surface layer more than 10 inches thick. The Osco soil, which formed in a more sloping area than the Sable soil, has browner colors and is more developed, indicating better drainage. The Sable profile has a thicker dark surface layer, grayer colors, and weaker development, indicating a more poorly drained setting. Because of these differences, the use and management of these two soils would differ significantly.

on low flood plains that periodically receive new alluvial sediments. Consequently, they have not been in place long enough for the development of distinct horizons. Brooklyn soils, however, which are on outwash plains, are more strongly developed than the Sawmill soils. They have distinct horizons because the loess and underlying outwash in which they formed have been in place a much longer time.

In most upland soils, enough time has passed to allow the removal of calcium carbonate from the upper 40 inches or more of the profile through leaching. In sloping areas, however, geologic and recent erosion has kept pace with or has exceeded the rate of soil development. Calcium carbonate typically occurs closer to the soil surface in these soils as this leached upper mantle is eroded away. Soils in these areas, such as Senachwine soils, are calcareous within a depth of 40 inches.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 4 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalfs (*Ud*, meaning humid, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalf*, the suborder of the Alfisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, active, mesic Typic Hapludalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. An example is the Senachwine series.

Soil Series and Detailed Soil Map Units

In this section, arranged in alphabetical order, each major soil series recognized in the survey area is described. Each series description is followed by detailed descriptions of the associated soil map units.

Characteristics of the soil and the material in which it formed are identified for each soil series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 2006). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

In some instances, the typical pedon for the series is located outside Macon County. The selection of typical pedons is based on the range of characteristics for the series as it occurs throughout a particular major land resource area (MLRA). The Ipava series, for example, is common in MLRA 108 (Illinois and Iowa Deep Loess and Drift), which covers all of Macon County and a large portion of central Illinois. The typical pedon for the Ipava series is located in Knox County, Illinois. The soil properties of this pedon are representative of the Ipava soils that occur not only in Knox County but also in Macon County and other counties in MLRA 108.

The map units on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information about each map unit is given under the headings "Use and Management of the Soils" and "Soil Properties."

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified

by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal soil properties and qualities that should be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. The soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Wyanet silt loam, 2 to 5 percent slopes, eroded, is a phase of the Wyanet series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are called complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Drummer-Milford silty clay loams, 0 to 2 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits, gravel, is an example. Some miscellaneous areas that are too small or narrow to be mapped at the scale used for the survey are identified with a special symbol on the soil maps.

Table 5 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

Beaucoup Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls

Typical Pedon

Beaucoup silty clay loam, 0 to 2 percent slopes, occasionally flooded, at an elevation of 480 feet above mean sea level; Adams County, Illinois; about 3.5 miles northwest of Ursa; 727 feet south and 2,577 feet west of the northeast corner of sec. 9, T. 1 N., R. 9 W.; USGS Long Island, Illinois, topographic quadrangle; lat. 40 degrees 05 minutes 33.1 seconds N. and long. 91 degrees 26 minutes 47.8 seconds W.; UTM Zone 15T, Easting 0632420, Northing 4439184; NAD 83:

Ap—0 to 6 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; weak fine granular structure; friable; common fine roots; common fine pores; few

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- fine distinct irregular yellowish brown (10YR 5/4) masses of oxidized iron-manganese lining root channels and pores; neutral; gradual smooth boundary.
- A—6 to 15 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; weak fine prismatic structure parting to weak medium subangular blocky; friable; few very fine roots; few very fine pores; few fine distinct irregular dark yellowish brown (10YR 3/4) masses of oxidized iron-manganese lining root channels and pores; neutral; gradual smooth boundary.
- Bg1—15 to 24 inches; dark gray (10YR 4/1) silty clay loam; weak fine prismatic structure parting to weak medium subangular blocky; friable; few very fine roots; few very fine pores; few fine distinct irregular dark yellowish brown (10YR 4/4) masses of oxidized iron-manganese throughout; neutral; clear smooth boundary.
- Bg2—24 to 35 inches; gray (5Y 5/1) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; few very fine roots; few very fine pores; common faint dark gray (5Y 4/1) clay films lining root channels and pores; few fine prominent irregular dark yellowish brown (10YR 4/4) masses of oxidized iron-manganese throughout and few fine prominent spherical strong brown (7.5YR 4/6) and dark brown (7.5YR 3/4) masses of oxidized iron-manganese throughout; neutral; clear smooth boundary.
- Bg3—35 to 48 inches; gray (5Y 5/1) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; few very fine roots; few very fine pores; few faint dark gray (5Y 4/1) clay films lining root channels and pores; few fine prominent irregular dark yellowish brown (10YR 4/4) masses of oxidized iron-manganese throughout and few fine prominent spherical strong brown (7.5YR 4/6) and dark brown (7.5YR 3/4) masses of oxidized iron-manganese throughout; neutral; clear smooth boundary.
- BCg—48 to 60 inches; gray (5Y 5/1), stratified silt loam and silty clay loam; weak medium prismatic structure; friable; few very fine pores; very few faint dark gray (5Y 4/1) clay films lining root channels and pores; common fine prominent irregular dark yellowish brown (10YR 4/4) masses of oxidized iron-manganese throughout and few fine prominent spherical strong brown (7.5YR 4/6) and dark brown (7.5YR 3/4) masses of oxidized iron-manganese throughout; neutral; clear smooth boundary.
- Cg1—60 to 70 inches; dark gray (10YR 4/1), stratified silt loam and silty clay loam; massive; friable; common fine prominent irregular dark yellowish brown (10YR 4/6) masses of oxidized iron-manganese throughout; neutral; clear smooth boundary.
- Cg2—70 to 80 inches; dark gray (10YR 4/1), stratified silt loam and silty clay loam; massive; friable; common fine prominent irregular dark yellowish brown (10YR 4/6) masses of oxidized iron-manganese throughout; slightly acid.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches

Depth to carbonates: More than 40 inches

Depth to the base of the cambic horizon: More than 35 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 or 2

Texture—silty clay loam

Content of rock fragments—none

Reaction—moderately acid to slightly alkaline

Bg or Btg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—3 to 6
Chroma—1 or 2
Texture—silty clay loam
Content of rock fragments—none
Reaction—moderately acid to slightly alkaline

BCg or Cg horizon:

Hue—10YR, 2.5Y, 5Y, or N
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam or silt loam with strata of loam, sandy loam, fine sandy loam, or very fine sandy loam
Content of rock fragments—none
Reaction—slightly acid to moderately alkaline

8070A—Beaucoup silty clay loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform: Flood plains

Map Unit Composition

Beaucoup and similar soils: 90 percent

Dissimilar soils: 10 percent

Components of Minor Extent

Similar soils:

- Somewhat poorly drained soils on rises; in positions above those of the Beaucoup soil
- Soils that have more sand in the substratum
- Soils that have carbonates above a depth of 40 inches
- Poorly drained soils in swales

Dissimilar soils:

- The very poorly drained Sawmill soils in swales; in positions below those of the Beaucoup soil
- The well drained Huntsville soils on rises; in positions above those of the Beaucoup soil

Properties and Qualities of the Beaucoup Soil

Parent material: Silty alluvium

Drainage class: Poorly drained

Slowest permeability within a depth of 40 inches: Moderately slow

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 11.3 inches to a depth of 60 inches

Content of organic matter in the surface layer: 5 to 6 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: At the surface, January through May

Ponding (average depth during the wettest periods or after heavy rainfall): 0.2 foot

Frequency and most likely period of ponding: Frequent, November through June

Frequency and most likely period of flooding: Occasional, November through June

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2w

Prime farmland category: Prime farmland where drained

Hydric soil status: Hydric

Birkbeck Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Typical Pedon

Birkbeck silt loam, 2 to 5 percent slopes, on a slope of 2 percent at an elevation of 680 feet above mean sea level; Macon County, Illinois; 1,600 feet east and 750 feet south of the northwest corner of sec. 25, T. 17 N., R. 3 E.; USGS Argenta, Illinois, topographic quadrangle; lat. 39 degrees 54 minutes 25.2 seconds N. and long. 88 degrees 48 minutes 59.9 seconds W.; UTM Zone 16S, Easting 0344718, Northing 4419014; NAD 83:

- A—0 to 4 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak thin platy structure parting to moderate very fine granular; friable; slightly acid; abrupt smooth boundary.
- E—4 to 9 inches; brown (10YR 4/3) silt loam; moderate very thin platy structure; friable; few distinct dark brown (10YR 3/3) organic coatings on faces of peds; few distinct gray (10YR 6/1) (dry) silt coatings of clean silt grains on faces of peds; very strongly acid; clear smooth boundary.
- Bt1—9 to 13 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak fine subangular blocky structure parting to moderate very fine granular; friable; common distinct dark brown (10YR 3/3) organo-clay films on faces of peds; common distinct light gray (10YR 7/1) (dry) silt coatings on faces of peds; few fine prominent irregular black (7.5YR 2.5/1) weakly cemented iron-manganese nodules throughout; strongly acid; clear smooth boundary.
- Bt2—13 to 24 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and very fine subangular blocky structure; friable; many distinct brown (7.5YR 4/4) clay films on faces of peds; common fine prominent irregular black (7.5YR 2.5/1) weakly cemented iron-manganese nodules throughout; strongly acid; clear smooth boundary.
- Bt3—24 to 29 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; friable; many distinct brown (7.5YR 4/4) clay films on faces of peds; common fine prominent irregular black (7.5YR 2.5/1) weakly cemented iron-manganese nodules throughout; strongly acid; clear smooth boundary.
- Bt4—29 to 42 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; many distinct brown (7.5YR 4/4) clay films on faces of peds; few fine distinct light brownish gray (2.5Y 6/2) iron depletions in the matrix; common fine distinct light yellowish brown (2.5Y 6/4) masses of oxidized iron-manganese in the matrix; common medium prominent irregular black (7.5YR 2.5/1) weakly cemented iron-manganese nodules throughout; strongly acid; gradual smooth boundary.
- Bt5—42 to 54 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium and coarse subangular blocky structure; friable; many distinct brown

(7.5YR 4/4) clay films on faces of peds; few fine distinct light brownish gray (2.5Y 6/2) iron depletions in the matrix; common fine distinct light yellowish brown (2.5Y 6/4) masses of oxidized iron-manganese and few medium distinct strong brown (7.5YR 5/6) masses of oxidized iron in the matrix; common medium prominent irregular black (7.5YR 2.5/1) weakly cemented iron-manganese nodules throughout; slightly acid; clear smooth boundary.

2Bt6—54 to 60 inches; dark yellowish brown (10YR 4/4) loam; weak coarse subangular blocky structure; friable; few distinct brown (7.5YR 4/4) clay films on faces of peds; few distinct very dark grayish brown (10YR 3/2) organo-clay films in pores; common fine distinct light brownish gray (2.5Y 6/2) iron depletions in the matrix; common medium distinct light yellowish brown (2.5Y 6/4) masses of oxidized iron-manganese and common fine distinct strong brown (7.5YR 5/6) masses of oxidized iron in the matrix; few fine prominent irregular black (7.5YR 2.5/1) weakly cemented iron-manganese nodules throughout; neutral; gradual smooth boundary.

2C—60 to 68 inches; light olive brown (2.5Y 5/4) loam; massive; firm; few distinct very dark grayish brown (10YR 3/2) organo-clay films in pores; common fine distinct light brownish gray (2.5Y 6/2) iron depletions in the matrix; common fine faint light yellowish brown (2.5Y 6/4) masses of oxidized iron-manganese and common fine distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine prominent irregular black (7.5YR 2.5/1) weakly cemented iron-manganese nodules throughout; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the loess: 40 to 60 inches

Depth to carbonates: 40 to 70 inches

Depth to the base of the argillic horizon: 40 to 70 inches

Ap or A horizon:

Hue—10YR

Value—2 to 5

Chroma—1 to 3

Texture—silt loam

Content of rock fragments—none

Reaction—moderately acid to neutral

E horizon (where present):

Hue—10YR

Value—4 or 5

Chroma—2 to 4

Texture—silt loam

Content of rock fragments—none

Reaction—very strongly acid to slightly acid

Bt horizon:

Hue—10YR

Value—4 or 5

Chroma—3 to 6

Texture—silty clay loam or silt loam

Content of rock fragments—none

Reaction—very strongly acid to neutral

2Bt or 2BC horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—2 to 8

Texture—loam, clay loam, silty clay loam, or silt loam
Content of rock fragments—0 to 15 percent
Reaction—slightly acid to slightly alkaline

2C horizon:

Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—loam or clay loam
Content of rock fragments—0 to 15 percent
Reaction—slightly alkaline or moderately alkaline

233B—Birkbeck silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines, end moraines

Position on the landform: Summits, backslopes, shoulders

Map Unit Composition

Birkbeck and similar soils: 92 percent

Dissimilar soils: 8 percent

Components of Minor Extent

Similar soils:

- Soils that have more than 60 inches of loess over the till
- Soils that have less than 40 inches of loess over the till
- Soils that are eroded
- Soils that are somewhat poorly drained
- Soils that have less clay in the surface layer

Dissimilar soils:

- The well drained Senachwine soils on side slopes; in positions below those of the Birkbeck soil
- The poorly drained Sable soils in swales; in positions below those of the Birkbeck soil

Properties and Qualities of the Birkbeck Soil

Parent material: Loess over till

Drainage class: Moderately well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderately slow or moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 10.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1 to 3 percent

Shrink-swell potential: Moderate

Depth and months of highest perched seasonal high water table: 2 feet, February through April

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Blackberry Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls

Typical Pedon

Blackberry silt loam, 2 to 5 percent slopes, on a slope of about 3.5 percent at an elevation of about 748 feet above mean sea level; Champaign County, Illinois; about 25 feet north and 450 feet west of the southeast corner of sec. 19, T. 21 N., R. 7 E.; USGS Foosland, Illinois, topographic quadrangle; lat. 40 degrees 15 minutes 09.6 seconds N. and long. 88 degrees 26 minutes 35.6 seconds W.; UTM Zone 16T, Easting 0377259, Northing 4456799; NAD 83:

- Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; neutral; abrupt smooth boundary.
- A—10 to 16 inches; dark brown (10YR 3/3) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; many faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; neutral; clear smooth boundary.
- BA—16 to 20 inches; brown (10YR 4/3) silty clay loam; weak very fine subangular blocky structure; friable; many faint dark brown (10YR 3/3) organic coatings on faces of peds; slightly acid; clear smooth boundary.
- Bt1—20 to 24 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; friable; many distinct brown (10YR 4/3) clay films on faces of peds; moderately acid; clear smooth boundary.
- Bt2—24 to 34 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; friable; many distinct brown (10YR 4/3) clay films on faces of peds; few fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; few fine prominent irregular black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; moderately acid; clear smooth boundary.
- Bt3—34 to 47 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium and coarse prismatic structure; friable; common distinct brown (10YR 4/3) clay films on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions in the matrix; few fine distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine distinct irregular black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; moderately acid; clear smooth boundary.
- 2BCt—47 to 62 inches; yellowish brown (10YR 5/4), stratified silt loam and loam; weak coarse subangular blocky structure; friable; very few faint brown (10YR 4/3) and grayish brown (10YR 5/2) clay films lining pores and on faces of peds; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine prominent irregular black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; slightly acid; gradual smooth boundary.
- 2C—62 to 70 inches; light olive brown (2.5Y 5/4), stratified silt loam, loam, and sandy loam; massive; friable; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine prominent irregular black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches

Thickness of the loess: 40 to 60 inches

Depth to carbonates: More than 40 inches

Depth to the base of the argillic horizon: 45 to 70 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 to 3

Texture—silt loam

Reaction—slightly acid or neutral

Bt horizon:

Hue—7.5YR or 10YR

Value—4 or 5

Chroma—2 to 4

Texture—silty clay loam or silt loam

Reaction—strongly acid to neutral

2Bt or 2BC horizon:

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—2 to 6

Texture—stratified silt loam and loam with other strata of clay loam, silty clay loam, silt loam, loam, sandy loam, or sandy clay loam or the gravelly analogs of these textures

Content of rock fragments—0 to 20 percent

Reaction—moderately acid to moderately alkaline

2C horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—2 to 6

Texture—stratified silt loam, loam, or sandy loam with other strata of clay loam, loamy sand, gravelly clay loam, or gravelly loamy sand

Content of rock fragments—0 to 14 percent

Reaction—moderately acid to moderately alkaline

679B—Blackberry silt loam, 2 to 5 percent slopes

Setting

Landform: Outwash plains, stream terraces

Position on the landform: Summits, backslopes

Map Unit Composition

Blackberry and similar soils: 90 percent

Dissimilar soils: 10 percent

Components of Minor Extent

Similar soils:

- Somewhat poorly drained soils in swales
- Well drained soils in positions similar to those of the Blackberry soil
- Soils that are moderately eroded
- Soils that have more sand in the upper part of the subsoil

Dissimilar soils:

- Soils that are severely eroded
- The poorly drained Drummer soils in swales; in positions below those of the Blackberry soil

Properties and Qualities of the Blackberry Soil

Parent material: Loess over outwash

Drainage class: Moderately well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 11.8 inches to a depth of 60 inches

Content of organic matter in the surface layer: 3 to 5 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: 2 feet, February through April

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Broadwell Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Argiudolls

Typical Pedon

Broadwell silt loam, 2 to 5 percent slopes, on a slope of 3.5 percent at an elevation of 636 feet above mean sea level; Christian County, Illinois; 2,500 feet north and 460 feet west of the center of sec. 11, T. 15 N., R. 2 W.; USGS Mount Auburn, Illinois, topographic quadrangle; lat. 39 degrees 46 minutes 16.9 seconds N. and long. 89 degrees 16 minutes 51.6 seconds W.; UTM Zone 16S, Easting 0304638, Northing 4404868; NAD 83:

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; weak fine granular structure; friable; common very fine and few fine roots; moderately acid; clear smooth boundary.

A—9 to 15 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; moderate fine granular structure; friable; few very fine and fine roots; slightly acid; clear smooth boundary.

Bt1—15 to 18 inches; dark brown (10YR 3/3) silty clay loam, yellowish brown (10YR 5/4) dry; weak very fine and fine subangular blocky structure; friable; few very fine and fine roots; many faint very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; slightly acid; clear smooth boundary.

Bt2—18 to 25 inches; brown (10YR 4/3) silty clay loam; moderate fine subangular blocky structure; firm; few very fine and fine roots; common faint very dark

- grayish brown (10YR 3/2) organo-clay films on faces of peds; moderately acid; clear smooth boundary.
- Bt3—25 to 31 inches; brown (10YR 4/3) silty clay loam; moderate fine subangular blocky structure; firm; few very fine and fine roots; common faint very dark grayish brown (10YR 3/2) clay films in root channels and/or pores and common faint brown (10YR 4/3) clay films on faces of peds; moderately acid; clear smooth boundary.
- Bt4—31 to 41 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; few very fine and fine roots; few distinct very dark grayish brown (10YR 3/2) organo-clay films in root channels and/or pores, common faint brown (10YR 4/3) clay films on faces of peds, and few distinct light gray (10YR 7/2) (dry) silt coatings on faces of peds and in pores; moderately acid; clear smooth boundary.
- Bt5—41 to 50 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium and coarse subangular blocky structure; friable; few very fine roots; common faint brown (10YR 4/3) clay films on faces of peds; few distinct light gray (10YR 7/2) (dry) silt coatings on faces of peds and in pores; few fine faint brown (10YR 5/3) masses of oxidized iron and manganese along micropores; moderately acid; abrupt smooth boundary.
- 2BC1—50 to 55 inches; dark yellowish brown (10YR 4/4), stratified loamy fine sand and sandy loam; weak coarse subangular blocky structure; very friable; slightly acid; clear smooth boundary.
- 2BC2—55 to 76 inches; stratified, yellowish brown (10YR 5/4) and brown (7.5YR 4/4) fine sand and loamy sand; single grain; loose; few distinct dark brown (7.5YR 3/2) organic coatings in pores; 3-inch strata of yellowish brown (10YR 5/6) silt loam starting at a depth of 75 inches; neutral; clear smooth boundary.
- 2C—76 to 80 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; slightly acid.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches

Thickness of the loess: 40 to 60 inches

Depth to carbonates: More than 60 inches

Depth to the base of the argillic horizon: 45 to 80 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 to 3

Texture—silt loam

Content of rock fragments—none

Reaction—moderately acid to neutral

Bt horizon:

Hue—10YR or 7.5YR

Value—3 to 5

Chroma—3 to 6

Texture—silty clay or silt loam

Content of rock fragments—none

Reaction—moderately acid to neutral

2Bt or 2BC horizon:

Hue—10YR or 7.5YR

Value—4 or 5

Chroma—4 to 6

Texture—stratified clay loam, loam, silt loam, fine sandy loam, or loamy sand

Content of rock fragments—none
Reaction—moderately acid to neutral

2C horizon:

Hue—10YR or 7.5YR
Value—4 or 5
Chroma—4 to 6
Texture—fine sand, sand, loamy fine sand, or loamy sand
Content of rock fragments—none
Reaction—moderately acid to neutral

684B—Broadwell silt loam, 2 to 5 percent slopes

Setting

Landform: Till plains, outwash plains

Position on the landform: Backslopes, shoulders, summits

Map Unit Composition

Broadwell and similar soils: 90 percent

Dissimilar soils: 10 percent

Components of Minor Extent

Similar soils:

- Moderately well drained soils in swales
- Soils that are slightly more acid in the surface layer

Dissimilar soils:

- Somewhat poorly drained soils in swales
- The somewhat excessively drained Sparta soils in positions below those of the Broadwell soil
- Soils near streams that are subject to flooding
- The poorly drained Drummer soils in swales

Properties and Qualities of the Broadwell Soil

Parent material: Loess over eolian sands

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 11.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 3 to 4 percent

Shrink-swell potential: Moderate

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: Moderate for steel and concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Brooklyn Series

Taxonomic classification: Fine, smectitic, mesic Mollic Albaqualfs

Typical Pedon

Brooklyn silt loam, 0 to 2 percent slopes, at an elevation of 679 feet above mean sea level; Douglas County, Illinois; 200 feet east and 1,430 feet south of the northwest corner of sec. 8, T. 16 N., R. 14 W.; USGS Newman, Illinois, topographic quadrangle; lat. 39 degrees 51 minutes 40.1 seconds N. and long. 87 degrees 58 minutes 28.4 seconds W.; UTM Zone 16S, Easting 0416644, Northing 4412800; NAD 83:

- Ap—0 to 9 inches; very dark gray (10YR 3/1) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; friable; common medium faint spherical black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; neutral; abrupt smooth boundary.
- Eg—9 to 14 inches; gray (2.5Y 6/1) silt loam; weak medium platy structure parting to moderate fine granular; friable; common distinct very dark gray (10YR 3/1) organic coatings on faces of peds; common fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; common medium prominent spherical black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; neutral; abrupt smooth boundary.
- Btg1—14 to 20 inches; light brownish gray (2.5Y 6/2) silty clay; moderate fine prismatic structure parting to moderate fine angular blocky; firm; many distinct dark gray (10YR 4/1) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few medium prominent spherical black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; neutral; clear smooth boundary.
- Btg2—20 to 31 inches; gray (2.5Y 6/1) silty clay; moderate medium prismatic structure parting to moderate medium angular blocky; firm; common distinct dark gray (2.5Y 4/1) clay films on faces of peds; many prominent black (N 2.5/) organo-clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few medium prominent spherical black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; moderately acid; gradual smooth boundary.
- Btg3—31 to 40 inches; gray (2.5Y 6/1) silty clay loam; moderate coarse prismatic structure parting to moderate coarse angular blocky; firm; common distinct dark gray (2.5Y 4/1) clay films on faces of peds; few prominent black (N 2.5/) organo-clay films lining pores and root channels; many medium prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; common medium prominent spherical black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; neutral; abrupt smooth boundary.
- 2Btg4—40 to 46 inches; gray (2.5Y 5/1) clay loam; weak coarse prismatic structure; firm; few distinct dark gray (2.5Y 4/1) clay films on faces of peds; few distinct black (2.5Y 2.5/1) organo-clay films lining pores and root channels; many medium prominent strong brown (7.5YR 4/6) masses of oxidized iron in the matrix; common medium distinct spherical black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; 5 percent gravel; neutral; abrupt smooth boundary.
- 2Bt—46 to 52 inches; 40 percent strong brown (7.5YR 4/6), 40 percent dark brown (10YR 3/3), and 20 percent gray (2.5Y 5/1) gravelly clay loam; weak coarse subangular blocky structure; firm; few distinct dark gray (2.5Y 4/1) clay films on faces of peds; few distinct black (2.5Y 2.5/1) organo-clay films lining pores and root channels; common medium prominent spherical black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; 20 percent gravel; neutral; abrupt smooth boundary.

Soil Survey of Macon County, Illinois

- 2BCt—52 to 62 inches; 50 percent yellowish brown (10YR 5/6), 30 percent light yellowish brown (2.5Y 6/3), and 20 percent gray (2.5Y 6/1) clay loam with thin strata of silt loam; massive; firm; very few distinct black (2.5Y 2.5/1) and very few distinct dark brown (7.5YR 3/2) organo-clay films lining pores and root channels; many medium prominent spherical black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; 5 percent gravel; neutral; gradual smooth boundary.
- 2C—62 to 73 inches; 60 percent yellowish brown (10YR 5/6) and 40 percent gray (2.5Y 5/1) loam with thin strata of sandy loam; massive; firm; many medium prominent irregular black (7.5YR 2.5/1) masses of iron-manganese throughout; 7 percent gravel; slightly effervescent; slightly alkaline; clear smooth boundary.
- 3Cd—73 to 80 inches; light olive brown (2.5Y 5/4) loam; few medium prominent red (2.5YR 4/8) mottles; massive; very firm; common fine distinct yellowish brown (10YR 5/6) masses of oxidized iron and few fine distinct light brownish gray (2.5Y 6/2) iron depletions in the matrix; 10 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic layer: 7 to 9 inches

Thickness of the loess: 36 to 55 inches

Depth to carbonates: More than 60 inches

Depth to the base of the argillic horizon: 40 to 72 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 or 2

Texture—silt loam

Content of rock fragments—none

Reaction—moderately acid to neutral

E or Eg horizon:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—1 or 2

Texture—silt loam

Content of rock fragments—none

Reaction—strongly acid to neutral

Btg horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—4 to 6

Chroma—0 to 2

Texture—silty clay or silty clay loam

Content of rock fragments—none

Reaction—strongly acid to neutral

2Btg, 2Bg, 2BCt, 2BCtg, or 2BCg horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—3 to 6

Chroma—1 to 6

Texture—stratified clay loam, sandy clay loam, sandy loam, or silt loam

Content of rock fragments—2 to 20 percent

Reaction—slightly acid to slightly alkaline

2Cg or 2C horizon:

Hue—10YR or 2.5Y

Value—5 or 6

Chroma—1 to 8

Texture—stratified clay loam, loam, sandy loam, or sandy clay loam

Content of rock fragments—2 to 15 percent

Reaction—neutral or slightly alkaline

3C or 3Cd horizon (where present):

Hue—10YR or 2.5Y

Value—5 or 6

Chroma—3 or 4

Texture—loam

Content of rock fragments—2 to 15 percent

Reaction—slightly alkaline or moderately alkaline

136A—Brooklyn silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains, stream terraces

Position on the landform: Toeslopes

Map Unit Composition

Brooklyn and similar soils: 93 percent

Dissimilar soils: 7 percent

Components of Minor Extent

Similar soils:

- Soils that have less than 2 percent rock fragments in the substratum
- Soils that do not have an abrupt textural change between the subsurface layer and the subsoil
- Soils that have less sand in the lower part of the subsoil
- Somewhat poorly drained soils on rises
- Soils that have less clay in the upper part of the subsoil
- Soils in which the eluvial horizon has been incorporated into the surface layer as a result of tillage
- Soils that have a light-colored surface layer
- Poorly drained soils in swales

Dissimilar soils:

- The well drained Plano soils on rises; in positions above those of the Brooklyn soil
- Moderately well drained soils on rises
- Soils near streams that are subject to flooding

Properties and Qualities of the Brooklyn Soil

Parent material: Loess over stratified loamy outwash

Drainage class: Poorly drained

Slowest permeability within a depth of 40 inches: Slow

Permeability below a depth of 60 inches: Moderately slow or moderate

Depth to restrictive feature: 7 to 21 inches to an abrupt textural change

Available water capacity: About 9.3 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.5 to 3.5 percent

Shrink-swell potential: High

Depth and months of highest perched seasonal high water table: At the surface, January through May

Ponding (average depth during the wettest periods or after heavy rainfall): 0.2 foot

Frequency and most likely period of ponding: Frequent, November through June

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2w

Prime farmland category: Prime farmland where drained

Hydric soil status: Hydric

7136A—Brooklyn silt loam, 0 to 2 percent slopes, rarely flooded

Setting

Landform: Stream terraces

Position on the landform: Toeslopes

Map Unit Composition

Brooklyn and similar soils: 93 percent

Dissimilar soils: 7 percent

Components of Minor Extent

Similar soils:

- Soils that have less than 2 percent rock fragments in the substratum
- Soils that do not have an abrupt textural change between the subsurface layer and the subsoil
- Soils that have less sand in the lower part of the subsoil
- Somewhat poorly drained soils on rises; in positions above those of the Brooklyn soil
- Soils that have less clay in the upper part of the subsoil
- Soils in which the eluvial horizon has been incorporated into the surface layer as a result of tillage
- Soils that have a light-colored surface layer

Dissimilar soils:

- Moderately well drained soils on rises
- Soils near streams that are subject to more frequent flooding than the Brooklyn soil
- The poorly drained Sawmill soils in swales

Properties and Qualities of the Brooklyn Soil

Parent material: Loess over stratified loamy outwash

Drainage class: Poorly drained

Slowest permeability within a depth of 40 inches: Slow

Permeability below a depth of 60 inches: Moderately slow or moderate

Depth to restrictive feature: 7 to 21 inches to an abrupt textural change

Available water capacity: About 9.8 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.5 to 3.5 percent

Shrink-swell potential: High

Depth and months of highest perched seasonal high water table: At the surface, January through May

Ponding (average depth during the wettest periods or after heavy rainfall): 0.2 foot

Frequency and most likely period of ponding: Frequent, November through June

Frequency and most likely period of flooding: Rare, November through June

Potential for frost action: High

Hazard of corrosion: High for steel and concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2w

Prime farmland category: Prime farmland where drained

Hydric soil status: Hydric

Buckhart Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls

Typical Pedon

Buckhart silt loam, 2 to 5 percent slopes, on a slope of about 3.5 percent at an elevation of 603 feet above mean sea level; Christian County, Illinois; 360 feet west and 540 feet north of the southeast corner of sec. 24, T. 14 N., R. 3 W.; USGS Grove City, Illinois, topographic quadrangle; lat. 39 degrees 33 minutes 17.4 seconds N. and long. 89 degrees 22 minutes 05.3 seconds W.; UTM Zone 16S, Easting 0296539, Northing 4381029; NAD 83:

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; few very fine roots; moderately acid; clear smooth boundary.

A—8 to 15 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure parting to moderate medium granular; friable; few very fine roots; moderately acid; clear smooth boundary.

Bt1—15 to 26 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure parting to moderate medium granular; friable; few very fine roots; many distinct brown (10YR 4/3) clay films on faces of peds and few distinct very dark grayish brown (10YR 3/2) organic coatings in root channels and pores; slightly acid; clear smooth boundary.

Bt2—26 to 37 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; few very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine distinct irregular light brownish gray (2.5Y 6/2) iron depletions and few fine distinct irregular strong brown (7.5YR 5/6) masses of oxidized iron lining pores; neutral; clear smooth boundary.

Bt3—37 to 52 inches; brown (10YR 5/3) silt loam; weak medium subangular blocky structure; friable; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine faint irregular light brownish gray (2.5Y 6/2) iron depletions and common fine prominent irregular strong brown (7.5YR 5/6) masses of oxidized iron lining pores; few fine prominent spherical black (7.5YR 2.5/1) iron-manganese nodules throughout; slightly acid; clear smooth boundary.

BCt—52 to 67 inches; light olive brown (2.5Y 5/3) silt loam; weak coarse subangular blocky structure; friable; few very fine roots; few distinct dark grayish brown

(10YR 4/2) clay films in root channels and pores; common fine faint irregular light brownish gray (2.5Y 6/2) iron depletions and common fine prominent irregular strong brown (7.5YR 5/6) masses of oxidized iron lining pores; few fine prominent spherical black (7.5YR 2.5/1) iron-manganese nodules throughout; neutral; gradual smooth boundary.

C—67 to 80 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; common medium distinct irregular light brownish gray (2.5Y 6/2) iron depletions and common medium distinct irregular strong brown (7.5YR 5/6) masses of oxidized iron throughout; few fine prominent spherical black (7.5YR 2.5/1) manganese nodules throughout; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches

Thickness of the loess: More than 80 inches

Depth to carbonates: More than 40 inches

Depth to the base of the argillic horizon: 40 to 55 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 to 3

Texture—silt loam or silty clay loam

Content of rock fragments—none

Reaction—moderately acid to neutral

Bt or Btg horizon:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—3 to 6

Texture—silty clay loam or silt loam

Content of rock fragments—none

Reaction—moderately acid to neutral

BC or BCg horizon:

Hue—10YR or 2.5Y

Value—5 or 6

Chroma—2 to 4

Texture—silt loam or silty clay loam

Content of rock fragments—none

Reaction—neutral or slightly alkaline

C or Cg horizon:

Hue—10YR or 2.5Y

Value—5 or 6

Chroma—2 to 6

Texture—silt loam

Content of rock fragments—none

Reaction—neutral to moderately alkaline

705B—Buckhart silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines, till plains

Position on the landform: Summits, shoulders, backslopes

Map Unit Composition

Buckhart and similar soils: 93 percent

Dissimilar soils: 7 percent

Components of Minor Extent

Similar soils:

- Well drained soils on slopes
- Soils that are eroded

Dissimilar soils:

- Soils that have more than 70 percent sand in the subsoil or substratum
- The poorly drained Sable and Denny soils in swales
- The somewhat poorly drained Elburn and Ipava soils in swales; in positions below those of the Buckhart soil

Properties and Qualities of the Buckhart Soil

Parent material: Loess

Drainage class: Moderately well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 12 inches to a depth of 60 inches

Content of organic matter in the surface layer: 3 to 4 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: 2 feet, February through April

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

749B—Buckhart silt loam, till substratum, 2 to 5 percent slopes

Setting

Landform: Ground moraines

Position on the landform: Summits, shoulders, backslopes

Map Unit Composition

Buckhart and similar soils: 93 percent

Dissimilar soils: 7 percent

Components of Minor Extent

Similar soils:

- Well drained soils in positions similar to those of the Buckhart soil

Soil Survey of Macon County, Illinois

- Soils that have more sand in the substratum
- Soils that are eroded
- Soils that have slopes of less than 2 percent
- Soils that have slopes of more than 5 percent

Dissimilar soils:

- The somewhat poorly drained Elburn and Ipava soils in swales; in positions below those of the Buckhart soil
- The poorly drained Sable soils in swales

Properties and Qualities of the Buckhart Soil

Parent material: Very deep loess over till

Drainage class: Moderately well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderately slow or moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 11.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 3 to 4 percent

Shrink-swell potential: Moderate

Depth and months of highest perched seasonal high water table: 2 feet, February through April

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Camden Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon

Camden silt loam, 2 to 5 percent slopes, on a slope of 3 percent at an elevation of 720 feet above mean sea level; Champaign County, Illinois; about 6 miles northeast of Penfield; 30 feet north and 100 feet west of the southeast corner of sec. 6, T. 22 N., R. 14 W.; USGS Rankin, Illinois, topographic quadrangle; lat. 40 degrees 23 minutes 06.1 seconds N. and long. 87 degrees 58 minutes 16.2 seconds W.; UTM Zone 16T, Easting 0417569, Northing 4470946; NAD 83:

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine and very fine granular structure; friable; neutral; abrupt smooth boundary.

E—9 to 14 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; moderate thin platy structure; friable; few distinct light brownish gray (10YR 6/2) (dry) silt coatings on faces of peds; neutral; abrupt smooth boundary.

Bt1—14 to 18 inches; yellowish brown (10YR 5/4) silt loam; weak very fine subangular blocky structure; friable; many distinct brown (10YR 4/3) clay films on

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- faces of peds; few distinct light brownish gray (10YR 6/2) (dry) silt coatings on faces of peds; neutral; clear smooth boundary.
- Bt2—18 to 22 inches; yellowish brown (10YR 5/4) silt loam; moderate fine subangular blocky structure; friable; many distinct brown (10YR 4/3) clay films on faces of peds; few distinct light brownish gray (10YR 6/2) (dry) silt coatings on faces of peds; slightly acid; clear smooth boundary.
- Bt3—22 to 28 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; friable; many distinct brown (10YR 4/3) clay films on faces of peds; few fine prominent spherical black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; moderately acid; clear smooth boundary.
- Bt4—28 to 35 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; common distinct brown (10YR 4/3) clay films on faces of peds; common fine and medium prominent irregular black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; 3 percent, by volume, chert pebbles; moderately acid; clear smooth boundary.
- 2Bt5—35 to 52 inches; yellowish brown (10YR 5/6) loam; moderate coarse prismatic structure parting to weak medium subangular blocky; friable; common distinct brown (10YR 4/3) clay films on faces of peds; few fine distinct yellowish brown (10YR 5/4) masses of oxidized iron and manganese in the matrix; common fine and medium prominent irregular black (7.5YR 2.5/1) weakly cemented iron-manganese nodules throughout; 5 percent, by volume, chert and quartz pebbles; moderately acid; clear smooth boundary.
- 2Bt6—52 to 62 inches; brown (10YR 4/3) and yellowish brown (10YR 5/4) sandy loam; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few faint brown (10YR 4/3) clay bridges between sand grains; few fine faint brown (10YR 5/3) masses of oxidized iron and manganese in the matrix; few fine distinct and prominent spherical black (7.5YR 2.5/1) weakly cemented iron-manganese nodules throughout; 5 percent, by volume, chert and quartz pebbles; moderately acid; clear smooth boundary.
- 2C—62 to 80 inches; yellowish brown (10YR 5/4 and 5/6), stratified sandy loam, loam, and sandy clay loam; massive; very friable; moderately acid.

Range in Characteristics

Thickness of the loess: 24 to 40 inches

Depth to carbonates: More than 60 inches

Depth to the base of the argillic horizon: 30 to 65 inches

Ap or A horizon:

Hue—10YR

Value—3 to 5

Chroma—2 to 4

Texture—silt loam

Content of rock fragments—none

Reaction—slightly acid or neutral

E or BE horizon (where present):

Hue—10YR

Value—4 to 6

Chroma—2 to 4

Texture—silt loam

Content of rock fragments—none

Reaction—strongly acid to neutral

Bt horizon:

Hue—7.5YR or 10YR

Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

2Bt or 2BC horizon:

Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—loam, clay loam, silt loam, silty clay loam, sandy loam, or sandy clay loam; stratified in some pedons
Content of rock fragments—0 to 10 percent by volume
Reaction—strongly acid to neutral

2C horizon:

Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—stratified sandy loam, loam, sandy clay loam, or silt loam
Content of rock fragments—0 to 10 percent by volume
Reaction—strongly acid to neutral

134B—Camden silt loam, 2 to 5 percent slopes

Setting

Landform: Stream terraces, outwash plains

Position on the landform: Summits, backslopes

Map Unit Composition

Camden and similar soils: 90 percent

Dissimilar soils: 10 percent

Components of Minor Extent

Similar soils:

- Soils that have more than 10 percent fine and coarser sand or outwash above a depth of 20 inches
- Soils that have a moderately dark surface layer between 7 and 10 inches thick
- Soils that have slopes of less than 2 percent
- Soils near streams that are subject to flooding

Dissimilar soils:

- The somewhat poorly drained Lawson soils on flood plains
- The somewhat poorly drained Starks soils in positions below those of the Camden soil
- The poorly drained Drummer soils in swales; in positions below those of the Camden soil

Properties and Qualities of the Camden Soil

Parent material: Loess over loamy outwash

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate or moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 10.4 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.5 percent

Shrink-swell potential: Moderate

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: Moderate for steel and concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

7134B—Camden silt loam, 2 to 5 percent slopes, rarely flooded

Setting

Landform: Stream terraces

Position on the landform: Summits, shoulders

Map Unit Composition

Camden and similar soils: 90 percent

Dissimilar soils: 10 percent

Components of Minor Extent

Similar soils:

- Soils that have more than 10 percent fine and coarser sand or outwash above a depth of 20 inches
- Soils that have a moderately dark surface layer between 7 and 10 inches thick
- Soils that have slopes of less than 2 percent

Dissimilar soils:

- The poorly drained Sawmill and somewhat poorly drained Lawson soils on flood plains
- The somewhat poorly drained Starks soils in positions below those of the Camden soil

Properties and Qualities of the Camden Soil

Parent material: Loess over loamy alluvium

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate or moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 10.4 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.5 percent

Shrink-swell potential: Moderate

Ponding: None

Frequency and most likely period of flooding: Rare, November through June

Potential for frost action: High

Hazard of corrosion: Moderate for steel and concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Catlin Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls

Typical Pedon

Catlin silt loam, 2 to 5 percent slopes, on a slope of 3 percent at an elevation of 791 feet above mean sea level; McLean County, Illinois; 330 feet east and 70 feet south of the northwest corner of sec. 11, T. 23 N., R. 1 E.; USGS Bloomington West, Illinois, topographic quadrangle; lat. 40 degrees 28 minutes 22.3 seconds N. and long. 89 degrees 04 minutes 34.8 seconds W.; UTM Zone 16T, Easting 0323987, Northing 4482314; NAD 83:

Ap—0 to 11 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine and medium subangular blocky structure; friable; neutral; clear smooth boundary.

AB—11 to 16 inches; dark brown (10YR 3/3) silty clay loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure; friable; neutral; abrupt smooth boundary.

Bt1—16 to 26 inches; dark yellowish brown (10YR 4/4) silty clay loam; strong fine and medium angular blocky structure; friable; common distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; few fine prominent masses of oxidized iron-manganese throughout; slightly acid; clear smooth boundary.

Bt2—26 to 41 inches; dark yellowish brown (10YR 4/6) silty clay loam; weak medium and coarse subangular blocky structure; friable; common distinct brown (10YR 4/3) and dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine prominent grayish brown (10YR 5/2) iron depletions in the matrix; few fine prominent masses of oxidized iron-manganese throughout; neutral; clear smooth boundary.

2Bt3—41 to 45 inches; yellowish brown (10YR 5/4) clay loam; weak coarse subangular blocky structure; friable; very few faint very dark grayish brown (10YR 3/2) organo-clay films lining root channels; few fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; few fine prominent masses of oxidized iron-manganese throughout; 2 percent fine gravel; very slightly effervescent; moderately alkaline; clear smooth boundary.

2C—45 to 60 inches; light olive brown (2.5Y 5/4) loam; massive; firm; few medium prominent yellowish brown (10YR 5/6) masses of oxidized iron and common fine and medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; few fine prominent masses of oxidized iron-manganese throughout; few fine prominent masses of calcium carbonate throughout; 2 percent fine gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon or mollic layer: 7 to 20 inches

Thickness of the loess: 40 to 60 inches

Depth to carbonates: 40 to 60 inches

Depth to the base of the argillic horizon: 45 to 65 inches

Ap or A horizon:

Hue—10YR
Value—2 to 3
Chroma—1 to 3
Texture—silt loam
Content of rock fragments—none
Reaction—moderately acid to neutral

AB or BA horizon (where present):

Hue—10YR
Value—2 to 3
Chroma—1 to 3
Texture—silt loam or silty clay loam
Content of rock fragments—none
Reaction—moderately acid to neutral

Bt horizon:

Hue—10YR or 2.5Y
Value—3 to 5
Chroma—3 to 6
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—slightly acid or neutral

2Bt horizon:

Hue—2.5YR, 7.5YR, or 10YR
Value—4 or 5
Chroma—2 to 8
Texture—clay loam, loam, silty clay loam, or silt loam
Content of rock fragments—0 to 10 percent
Reaction—slightly acid to moderately alkaline

2BC horizon (where present) or 2C horizon:

Hue—2.5YR, 7.5YR, or 10YR
Value—4 or 5
Chroma—2 to 8
Texture—clay loam, loam, silty clay loam, or silt loam
Content of rock fragments—0 to 10 percent
Reaction—neutral to moderately alkaline

171B—Catlin silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines, end moraines

Position on the landform: Summits, shoulders

Map Unit Composition

Catlin and similar soils: 94 percent

Dissimilar soils: 6 percent

Components of Minor Extent

Similar soils:

- Somewhat poorly drained soils; in positions below those of the Catlin soil
- Well drained soils in positions similar to those of the Catlin soil
- Soils that do not have carbonates between depths of 40 and 60 inches

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- Soils that have slopes of less than 2 percent or more than 5 percent
- Soils that are moderately eroded
- Soils that have less clay in the subsoil
- Soils that have more than 60 inches of loess over loamy till

Dissimilar soils:

- Soils that are severely eroded
- The poorly drained Drummer and Harpster soils in swales

Properties and Qualities of the Catlin Soil

Parent material: Loess over till

Drainage class: Moderately well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 9.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2.5 to 4.0 percent

Shrink-swell potential: Moderate

Depth and months of highest perched seasonal high water table: 2 feet, February through April

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Clarksdale Series

Taxonomic classification: Fine, smectitic, mesic Udollic Endoaqualfs

Taxadjunct features: The Clarksdale soils in this survey area have grayer colors in the upper part of the subsoil than is defined as the range for the series. This difference, however, does not significantly affect the use, management, or interpretations of the soils. These soils are classified as fine, smectitic, mesic Mollic Endoaqualfs.

Typical Pedon

Clarksdale silt loam, 0 to 2 percent slopes, at an elevation of 610 feet above mean sea level; Macon County, Illinois; about 2½ miles north of Blue Mound; 673 feet east and 2,490 feet north of the southwest corner of sec. 19, T. 15 N., R. 1 E.; USGS Stonington, Illinois, topographic quadrangle; lat. 39 degrees 44 minutes 06.4 seconds N. and long. 89 degrees 08 minutes 17.5 seconds W.; UTM Zone 16S, Easting 0316774, Northing 4400543; NAD 83:

Ap—0 to 7 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; weak fine granular structure; friable; moderately acid; abrupt smooth boundary.

E1—7 to 10 inches; dark gray (10YR 4/1) silt loam; common mixing of darker material from the surface layer and lighter patches of clean silt grains on faces of peds; weak medium platy structure parting to weak fine granular; friable; brittle when

- dry; few fine distinct yellowish brown (10YR 5/4) masses of oxidized iron and manganese throughout; moderately acid; clear smooth boundary.
- E2—10 to 17 inches; grayish brown (10YR 5/2) silt loam; weak medium subangular blocky structure parting to moderate fine granular; friable; common fine distinct yellowish brown (10YR 5/4) masses of oxidized iron and manganese throughout; moderately acid; abrupt smooth boundary.
- BEg—17 to 24 inches; dark grayish brown (10YR 4/2) silty clay loam; weak fine and medium subangular blocky structure; friable; few distinct gray (10YR 6/1) (dry) silt coatings on faces of peds; common fine distinct yellowish brown (10YR 5/4) masses of oxidized iron and manganese throughout; moderately acid; clear smooth boundary.
- Btg1—24 to 31 inches; grayish brown (10YR 5/2) silty clay loam; moderate fine and medium angular blocky structure; firm; many distinct very dark grayish brown (10YR 3/2) organo-clay films and dark grayish brown (10YR 4/2) clay films and few distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; common medium prominent strong brown (7.5YR 5/8) masses of oxidized iron and common medium distinct yellowish brown (10YR 5/4) masses of oxidized iron and manganese in the matrix; slightly acid; clear smooth boundary.
- Btg2—31 to 42 inches; mixed grayish brown (2.5Y 5/2), strong brown (7.5YR 4/6), and yellowish brown (10YR 5/6) silty clay loam; moderate medium prismatic structure; firm; many distinct dark gray (10YR 4/1) clay films, dark grayish brown (10YR 4/2) clay films, and very dark gray (10YR 3/1) organo-clay films on faces of peds; slightly acid; clear smooth boundary.
- Btg3—42 to 52 inches; light brownish gray (2.5Y 6/2) silty clay loam; moderate coarse prismatic structure; firm; many distinct black (10YR 2/1) organo-clay films and dark grayish brown (10YR 4/2) clay films on faces of peds; many medium and coarse prominent strong brown (7.5YR 5/6) masses of oxidized iron in the matrix; slightly acid; gradual smooth boundary.
- BCt—52 to 60 inches; mixed yellowish brown (10YR 5/6) and gray (5Y 6/1) silty clay loam; weak coarse prismatic structure; friable; common distinct very dark gray (10YR 3/1) organo-clay films lining pores; slightly acid.

Range in Characteristics

Thickness of the mollic layer: 7 to 9 inches

Thickness of the loess: More than 80 inches

Depth to carbonates: 40 to 72 inches

Depth to the base of the argillic horizon: 40 to 60 inches

Ap horizon:

Hue—10YR

Value—2 to 3

Chroma—1 or 2

Texture—silt loam

Content of rock fragments—none

Reaction—moderately acid to neutral

E or Eg horizon (where present):

Hue—10YR

Value—4 to 6

Chroma—1 or 2

Texture—silt loam

Content of rock fragments—none

Reaction—strongly acid to neutral

Bt or Btg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6
Chroma—1 to 6
Texture—silty clay loam, silty clay, or silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

BCtg, BCg, or Cg horizon:

Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 6
Texture—silt loam
Content of rock fragments—none
Reaction—neutral or slightly alkaline

257A—Clarksdale silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains, outwash plains

Position on the landform: Summits

Map Unit Composition

Clarksdale and similar soils: 93 percent

Dissimilar soils: 7 percent

Components of Minor Extent

Similar soils:

- Soils that are eroded
- Soils that have slopes of more than 2 percent
- Soils that have a higher pH in the upper part of the subsoil
- Soils that have less clay in the subsoil
- Soils that do not have an eluvial horizon or in which the subsurface layer has been incorporated into the surface layer as a result of tillage
- Soils that have redder and brighter colors in the subsoil
- Soils that are better drained

Dissimilar soils:

- Soils that have loamy outwash below a depth of 40 inches
- The poorly drained Shiloh and Denny soils in swales

Properties and Qualities of the Clarksdale Soil

Parent material: Loess

Drainage class: Somewhat poorly drained

Slowest permeability within a depth of 40 inches: Moderately slow

Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 10.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.5 to 3.5 percent

Shrink-swell potential: High

Depth and months of highest apparent seasonal high water table: 0.5 foot, January through May

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2w

Prime farmland category: Prime farmland where drained

Hydric soil status: Not hydric

Dana Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls

Taxadjunct features: The Dana soils in map units 56B2 and 56C2 have a thinner dark surface layer than is defined as the range for the series. This difference, however, does not significantly affect the use, management, or interpretations of the soils. These soils are classified as fine-silty, mixed, superactive, mesic Mollic Oxyaquic Hapludalfs.

Typical Pedon

Dana silt loam, 2 to 5 percent slopes, on a slope of 3 percent at an elevation of about 706 feet above mean sea level; Edgar County, Illinois; about 1,810 feet north and 750 feet east of the southwest corner of sec. 10, T. 16 N., R. 14 W.; USGS Newman, Illinois, topographic quadrangle; lat. 39 degrees 51 minutes 21.1 seconds N. and long. 87 degrees 56 minutes 05.2 seconds W.; UTM Zone 16S, Easting 0420040, Northing 4412178; NAD 83:

Ap—0 to 11 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 4/3) dry; moderate fine granular structure; friable; common very fine and fine roots throughout; moderately acid; clear smooth boundary.

Bt1—11 to 15 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; friable; common very fine and fine roots throughout; common distinct very dark gray (10YR 3/1) organic coatings on faces of peds; many distinct dark brown (10YR 3/3) organo-clay films on faces of peds; slightly acid; clear smooth boundary.

Bt2—15 to 25 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine prismatic structure parting to moderate fine angular blocky; firm; common very fine and fine roots between peds; many distinct brown (10YR 4/3) clay films on faces of peds; moderately acid; clear smooth boundary.

Bt3—25 to 32 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; firm; common very fine and fine roots between peds; common medium vesicular and tubular pores; few distinct dark brown (10YR 3/3) organo-clay films on faces of peds and in pores; many distinct brown (10YR 4/3) clay films on faces of peds; common fine faint light brownish gray (10YR 6/2) iron depletions in the matrix; common medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; common fine and medium distinct spherical black (7.5YR 2.5/1) weakly cemented iron-manganese nodules throughout; slightly acid; clear smooth boundary.

2Bt4—32 to 38 inches; brown (10YR 5/3) clay loam; moderate medium prismatic structure; firm; few very fine and fine roots between peds; common medium vesicular and tubular pores; few distinct very dark grayish brown (10YR 3/2) organo-clay films along root channels and pores; many distinct brown (10YR 4/3) clay films on faces of peds; common medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; many medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; common fine and medium distinct spherical

- black (7.5YR 2.5/1) weakly cemented iron-manganese nodules throughout; 3 percent fine and medium gravel; neutral; clear smooth boundary.
- 2Bt5—38 to 53 inches; brown (10YR 5/3) clay loam; moderate coarse prismatic structure; firm; few very fine and fine roots between peds; common medium and coarse vesicular and tubular pores; few prominent very dark gray (10YR 3/1) organo-clay films along root channels and pores; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium distinct gray (10YR 6/1) iron depletions in the matrix; many medium distinct dark yellowish brown (10YR 4/6) masses of oxidized iron and manganese in the matrix; few medium distinct spherical black (7.5YR 2.5/1) weakly cemented iron-manganese nodules throughout; 7 percent fine and medium gravel; neutral; clear smooth boundary.
- 2Bt6—53 to 58 inches; brown (10YR 5/3) clay loam; weak coarse angular blocky structure; firm; few very fine and fine roots between peds; common medium and coarse vesicular and tubular pores; few prominent very dark gray (10YR 3/1) organo-clay films along root channels and pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium distinct gray (10YR 6/1) iron depletions in the matrix; many medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few medium distinct spherical black (7.5YR 2.5/1) weakly cemented iron-manganese nodules throughout; 7 percent fine and medium gravel; neutral; clear smooth boundary.
- 2C—58 to 80 inches; pale brown (10YR 6/3) loam; massive; firm; few fine and medium vesicular and tubular pores; common medium distinct gray (10YR 6/1) iron depletions in the matrix; common medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; common medium irregular brown (10YR 4/3) extremely weakly cemented iron-manganese accumulations on horizontal fracture planes; few fine to coarse prominent spherical yellowish red (5YR 5/8) weakly cemented iron oxide nodules throughout; few medium prominent spherical black (7.5YR 2.5/1) weakly cemented iron-manganese nodules throughout; common medium distinct spherical and irregular white (10YR 8/1) weakly cemented calcium carbonate nodules throughout; 7 percent fine and medium gravel; violently effervescent; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon or mollic layer: 7 to 20 inches

Thickness of the loess: 22 to 40 inches

Depth to carbonates: 40 to 60 inches

Depth to the base of the argillic horizon: 32 to 60 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 or 2

Texture—silt loam

Content of rock fragments—typically none

Reaction—moderately acid to neutral

BA horizon (where present):

Hue—10YR

Value—4

Chroma—3

Texture—silt loam or silty clay loam

Content of rock fragments—typically none

Reaction—moderately acid to neutral

Bt horizon:

Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam
Content of rock fragments—typically none
Reaction—strongly acid to neutral

2Bt horizon:

Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 or 4
Texture—clay loam
Content of rock fragments—1 to 7 percent
Reaction—moderately acid to neutral

2BC horizon (where present):

Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 or 4
Texture—loam or clay loam
Content of rock fragments—1 to 15 percent
Reaction—neutral to moderately alkaline

2C horizon:

Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—loam or clay loam
Content of rock fragments—1 to 15 percent
Reaction—slightly alkaline or moderately alkaline

56B—Dana silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines

Position on the landform: Shoulders, summits

Map Unit Composition

Dana and similar soils: 94 percent

Dissimilar soils: 6 percent

Components of Minor Extent

Similar soils:

- Soils that are severely eroded
- Soils that have a light-colored subsurface layer
- Soils that have more clay or sand in the subsoil
- Soils that are somewhat poorly drained
- Soils that are well drained
- Soils that have slopes of more than 5 percent

Dissimilar soils:

- Soils near streams that are subject to flooding
- The poorly drained Drummer soils in swales

Properties and Qualities of the Dana Soil

Parent material: Loess over till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3 to 5 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 2 feet, February through April
Ponding: None
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

56B2—Dana silt loam, 2 to 5 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Shoulders, summits

Map Unit Composition

Dana and similar soils: 94 percent
Dissimilar soils: 6 percent

Components of Minor Extent

Similar soils:

- Soils that are not eroded
- Soils that are severely eroded
- Soils that have a light-colored subsurface layer
- Soils that have more clay or sand in the subsoil
- Soils that are somewhat poorly drained
- Soils that are well drained
- Soils that have slopes of more than 5 percent

Dissimilar soils:

- Soils near streams that are subject to flooding
- The poorly drained Drummer soils in swales

Properties and Qualities of the Dana Soil

Parent material: Loess over till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 9.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.5 to 3.5 percent

Shrink-swell potential: Moderate

Depth and months of highest perched seasonal high water table: 2 feet, February through April

Ponding: None

Flooding: None

Accelerated erosion: The surface layer has been thinned by erosion.

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

56C2—Dana silty clay loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines

Position on the landform: Backslopes

Map Unit Composition

Dana and similar soils: 93 percent

Dissimilar soils: 7 percent

Components of Minor Extent

Similar soils:

- Soils that are not eroded
- Soils that are severely eroded
- Soils that have a light-colored subsurface layer
- Soils that have more clay or sand in the subsoil
- Soils that are somewhat poorly drained
- Soils that are well drained
- Soils that have slopes of more than 10 percent

Dissimilar soils:

- Soils near streams that are subject to flooding
- The poorly drained Drummer soils in swales

Properties and Qualities of the Dana Soil

Parent material: Loess over loamy till

Drainage class: Moderately well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 9.4 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.5 to 3.5 percent

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Shrink-swell potential: Moderate

Depth and months of highest perched seasonal high water table: 2 feet, February through April

Ponding: None

Flooding: None

Accelerated erosion: The surface layer has been thinned by erosion.

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3e

Prime farmland category: Not prime farmland

Hydric soil status: Not hydric

Denny Series

Taxonomic classification: Fine, smectitic, mesic Mollic Albaqualfs

Typical Pedon

Denny silt loam, 0 to 2 percent slopes, at an elevation of 722 feet above mean sea level; McDonough County, Illinois; 225 feet north and 1,680 feet east of the southwest corner of sec. 25, T. 7 N., R. 3 W.; USGS Good Hope, Illinois, topographic quadrangle; lat. 40 degrees 33 minutes 31.1 seconds N. and long. 90 degrees 41 minutes 14.5 seconds W.; UTM Zone 15T, Easting 0695797, Northing 4492335; NAD 83:

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; weak fine granular structure; very friable; few very fine roots throughout; moderately acid; abrupt smooth boundary.

Eg1—8 to 14 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak thick platy structure parting to weak thin platy; very friable; few very fine roots throughout; few distinct very dark gray (10YR 3/1) organic coatings in root channels; common faint grayish brown (10YR 5/2) clay depletions on faces of peds; common fine prominent dark yellowish brown (10YR 3/6) masses of oxidized iron-manganese throughout; few fine prominent spherical black (N 2.5/) manganese concretions in the matrix; moderately acid; clear smooth boundary.

Eg2—14 to 21 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; weak thick platy structure parting to moderate medium platy; friable; few very fine roots throughout; few distinct very dark gray (10YR 3/1) organic coatings in root channels; common fine distinct dark brown (10YR 3/3) masses of oxidized iron-manganese throughout; common fine prominent spherical black (N 2.5/) manganese concretions in the matrix; moderately acid; abrupt smooth boundary.

Btg1—21 to 29 inches; grayish brown (10YR 5/2) silty clay loam; moderate fine and medium subangular blocky structure; firm; few very fine roots between peds; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few distinct very dark gray (10YR 3/1) organic coatings in root channels; many fine prominent dark yellowish brown (10YR 4/6) and common fine distinct yellowish brown (10YR 5/4) masses of oxidized iron throughout; common fine prominent spherical black (N 2.5/) manganese concretions in the matrix; moderately acid; clear smooth boundary.

- Btg2—29 to 38 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots between pedes; common faint dark grayish brown (10YR 4/2) clay films on faces of pedes; few distinct very dark gray (10YR 3/1) organic coatings in root channels; many fine prominent dark yellowish brown (10YR 4/6) and common fine prominent yellowish brown (10YR 5/8) masses of oxidized iron throughout; common fine prominent spherical black (N 2.5/) iron-manganese concretions in the matrix; moderately acid; gradual smooth boundary.
- Btg3—38 to 46 inches; light brownish gray (2.5Y 6/2) silty clay loam; moderate coarse prismatic structure parting to moderate coarse subangular blocky; firm; very few fine roots between pedes; common distinct dark grayish brown (10YR 4/2) clay films on faces of pedes; few distinct very dark gray (10YR 3/1) organic coatings in root channels; many fine prominent dark yellowish brown (10YR 4/6) and common fine prominent strong brown (7.5YR 5/6) masses of oxidized iron throughout; common fine prominent spherical black (N 2.5/) manganese concretions in the matrix; moderately acid; gradual wavy boundary.
- Cg1—46 to 63 inches; light brownish gray (2.5Y 6/2) silty clay loam; massive; firm; few very fine roots between pedes; very few distinct very dark gray (10YR 3/1) organic coatings in root channels; many fine prominent dark yellowish brown (10YR 4/6) and common fine prominent strong brown (7.5YR 5/6) masses of oxidized iron throughout; few medium prominent spherical black (N 2.5/) manganese concretions in the matrix; slightly acid; diffuse wavy boundary.
- Cg2—63 to 80 inches; light brownish gray (2.5Y 6/2) silt loam; massive; firm; very few distinct very dark gray (10YR 3/1) organic coatings in root channels; many fine prominent dark yellowish brown (10YR 4/6) and common fine prominent strong brown (7.5YR 5/6) masses of oxidized iron throughout; few medium prominent spherical black (N 2.5/) manganese concretions in the matrix; slightly acid.

Range in Characteristics

Thickness of the mollic layer: 7 to 9 inches
Thickness of the loess: More than 60 inches
Depth to carbonates: More than 60 inches
Depth to the base of the argillic horizon: 40 to 65 inches

Ap or A horizon:

Hue—10YR
Value—2 to 3
Chroma—1 or 2
Texture—silt loam
Content of rock fragments—none
Reaction—moderately acid to neutral

Eg horizon:

Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 or 2
Texture—silt loam
Content of rock fragments—none
Reaction—moderately acid or slightly acid

Btg horizon:

Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silty clay loam or silty clay

Content of rock fragments—none

Reaction—moderately acid or slightly acid in the upper part; ranges to slightly alkaline in the lower part

Cg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 or 2

Texture—silt loam or silty clay loam

Content of rock fragments—none

Reaction—slightly acid to slightly alkaline

45A—Denny silt loam, 0 to 2 percent slopes

Setting

Landform: Closed depressions on ground moraines and till plains

Map Unit Composition

Denny and similar soils: 94 percent

Dissimilar soils: 6 percent

Components of Minor Extent

Similar soils:

- Soils that have a thicker dark surface layer
- Soils that have a gradual increase in clay content from the subsurface layer to the subsoil
- Somewhat poorly drained soils on slight rises; in positions above those of the Denny soil

Dissimilar soils:

- Soils near streams that are subject to flooding

Properties and Qualities of the Denny Soil

Parent material: Loess

Drainage class: Poorly drained

Slowest permeability within a depth of 40 inches: Slow

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: 10 to 24 inches to an abrupt textural change

Available water capacity: About 11.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2 to 3 percent

Shrink-swell potential: High

Depth and months of highest apparent seasonal high water table: At the surface,
January through May

Ponding (average depth during the wettest periods or after heavy rainfall): 0.2 foot

Frequency and most likely period of ponding: Frequent, November through June

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3w

Prime farmland category: Prime farmland where drained

Hydric soil status: Hydric

Drummer Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Endoaquolls

Typical Pedon

Drummer silty clay loam, 0 to 2 percent slopes, at an elevation of 715 feet above mean sea level; Champaign County, Illinois; on the University of Illinois South Farm 1 mile south of Urbana; 1,600 feet east and 300 feet north of the southwest corner of sec. 19, T. 19 N., R. 9 E.; USGS Urbana, Illinois, topographic quadrangle; lat. 40 degrees 05 minutes 04.1 seconds N. and long. 88 degrees 13 minutes 58.2 seconds W.; UTM Zone 16T, Easting 0394894, 4437861; NAD 83:

- Ap—0 to 7 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; weak fine granular structure; firm; many fine roots; moderately acid; clear smooth boundary.
- A—7 to 14 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine subangular blocky structure parting to weak fine granular; firm; many fine and medium roots; slightly acid; clear smooth boundary.
- BA—14 to 19 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; moderate fine and medium subangular blocky structure; firm; many fine and medium roots; few fine faint very dark grayish brown (2.5Y 3/2) masses of oxidized iron-manganese in the matrix; slightly acid; gradual smooth boundary.
- Bg—19 to 25 inches; dark gray (10YR 4/1) silty clay loam; moderate fine prismatic structure parting to moderate fine angular blocky; firm; many fine roots; common fine distinct and prominent yellowish brown (10YR 5/4 and 5/6) masses of oxidized iron in the matrix; many worm holes; neutral; gradual smooth boundary.
- Btg1—25 to 32 inches; grayish brown (2.5Y 5/2) silty clay loam; weak fine and medium prismatic structure parting to moderate fine angular blocky; firm; many fine roots; common distinct dark gray (N 4/) clay films on faces of peds; many medium distinct yellowish brown (10YR 5/4) masses of oxidized iron-manganese in the matrix; neutral; gradual wavy boundary.
- Btg2—32 to 41 inches; gray (N 5/) silty clay loam; weak medium prismatic structure parting to weak medium angular blocky; firm; few fine roots; few distinct dark gray (N 4/) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/4) masses of oxidized iron-manganese in the matrix; neutral; clear wavy boundary.
- 2Btg3—41 to 47 inches; gray (N 5/) loam; weak coarse subangular blocky structure; friable; few fine roots; few distinct dark gray (10YR 4/1) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; neutral; abrupt wavy boundary.
- 2Cg—47 to 60 inches; dark gray (10YR 4/1), stratified loam and sandy loam; massive; friable; many medium prominent olive brown (2.5Y 4/4) masses of oxidized iron-manganese in the matrix; many medium distinct gray (N 5/) iron depletions in the matrix; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches

Thickness of the loess: 40 to 60 inches

Depth to carbonates: 40 to 65 inches

Depth to the base of the cambic horizon: 40 to 65 inches

Ap, A, AB, or BA horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—2 to 3

Chroma—0 to 2

Texture—silty clay loam

Content of rock fragments—0 to 1 percent

Reaction—moderately acid to neutral

Bg or Btg horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—4 to 6

Chroma—0 to 4

Texture—silty clay loam or silt loam

Content of rock fragments—0 to 1 percent

Reaction—moderately acid to neutral

2Btg, 2BC, or 2BCg horizon:

Hue—7.5YR, 10YR, 2.5Y, 5Y, or N

Value—4 to 6

Chroma—0 to 2

Texture—loam or silt loam

Content of rock fragments—0 to 7 percent

Reaction—slightly acid to slightly alkaline

2Cg horizon:

Hue—7.5YR, 10YR, 2.5Y, 5Y, or N

Value—4 to 6

Chroma—0 to 8

Texture—loam, sandy loam, sandy clay loam, silt loam, silty clay loam, or clay loam; typically stratified

Content of rock fragments—0 to 15 percent

Reaction—neutral to moderately alkaline

152A—Drummer silty clay loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains, stream terraces

Position on the landform: Toeslopes

Map Unit Composition

Drummer and similar soils: 90 percent

Dissimilar soils: 10 percent

Components of Minor Extent

Similar soils:

- Soils that are underlain by loam till
- Somewhat poorly drained soils on slight rises
- Poorly drained soils in depressions
- Soils that have more clay in the subsoil
- Soils that have carbonates above a depth of 40 inches
- Soils that have a very thick dark surface layer

Dissimilar soils:

- Moderately well drained soils on side slopes and rises; in positions above those of the Drummer soil
- Soils near streams that are subject to flooding

Properties and Qualities of the Drummer Soil

Parent material: Loess over stratified loamy outwash

Drainage class: Poorly drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 9.3 inches to a depth of 60 inches

Content of organic matter in the surface layer: 4.5 to 7.0 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: At the surface,
January through May

Ponding (average depth during the wettest periods or after heavy rainfall): 0.2 foot

Frequency and most likely period of ponding: Frequent, November through June

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2w

Prime farmland category: Prime farmland where drained

Hydric soil status: Hydric

722A—Drummer-Milford silty clay loams, 0 to 2 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Toeslopes

Map Unit Composition

Drummer and similar soils: 60 percent

Milford and similar soils: 35 percent

Dissimilar soils: 5 percent

Components of Minor Extent

Similar soils:

- Somewhat poorly drained soils on side slopes and rises; in positions above those of the Drummer and Milford soils

Dissimilar soils:

- Soils near streams that are subject to flooding
- The moderately well drained Dana and well drained Osco soils on side slopes and rises; in positions above those of the Drummer and Milford soils

Properties and Qualities of the Drummer Soil

Parent material: Loess over stratified loamy outwash
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 4.5 to 7.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: At the surface,
January through May
Ponding (average depth during the wettest periods or after heavy rainfall): 0.2 foot
Frequency and most likely period of ponding: Frequent, November through June
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Properties and Qualities of the Milford Soil

Parent material: Loess over silty and clayey lacustrine deposits
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 4.5 to 6.0 percent
Shrink-swell potential: High
Depth and months of highest apparent seasonal high water table: At the surface,
January through May
Ponding (average depth during the wettest periods or after heavy rainfall): 0.2 foot
Frequency and most likely period of ponding: Frequent, November through June
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Moderate

Interpretive Groups

Land capability classification: Drummer—2w; Milford—2w
Prime farmland category: Prime farmland where drained
Hydric soil status: Drummer—hydric; Milford—hydric

Elburn Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Argiudolls

Typical Pedon

Elburn silt loam, 0 to 2 percent slopes, at an elevation of 617 feet above mean sea level; Christian County, Illinois; 2,716 feet north and 1,300 feet west of the southeast corner of sec. 36, T. 14 N., R. 1 E.; USGS Assumption, Illinois, topographic

Soil Survey of Macon County, Illinois

quadrangle; lat. 39 degrees 37 minutes 04.6 seconds N. and long. 89 degrees 01 minute 46.2 seconds W.; UTM Zone 16S, Easting 0325795, 4387321; NAD 83:

- Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; few very fine roots; many very dark gray (10YR 3/1) organic coatings on faces of peds; slightly acid; abrupt smooth boundary.
- A—6 to 16 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; few very fine roots; many very dark gray (10YR 3/1) organic coatings on faces of peds; neutral; clear smooth boundary.
- Bt1—16 to 21 inches; brown (10YR 4/3) silty clay loam; moderate fine subangular blocky structure; friable; few very fine roots; many distinct very dark gray (10YR 3/1) organo-clay films and dark gray (10YR 4/1) clay films on faces of peds; few fine prominent yellowish brown (10YR 5/8) masses of oxidized iron and few fine faint brown (10YR 5/3) masses of oxidized iron-manganese in the matrix; few fine iron-manganese concretions throughout; slightly acid; clear smooth boundary.
- Bt2—21 to 28 inches; brown (10YR 5/3) silty clay loam; moderate fine subangular blocky structure; firm; few very fine roots; common distinct very dark gray (10YR 3/1) organo-clay films and common faint dark grayish brown (10YR 4/2) clay films on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions and few fine distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine iron-manganese concretions throughout; neutral; clear smooth boundary.
- Bt3—28 to 36 inches; brown (10YR 5/3) silty clay loam; moderate medium subangular blocky structure; firm; few very fine roots; common distinct very dark gray (10YR 3/1) organo-clay films and dark gray (10YR 4/1) clay films on faces of peds; common fine faint grayish brown (10YR 5/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine iron-manganese concretions throughout; neutral; clear smooth boundary.
- Bt4—36 to 43 inches; light olive brown (2.5Y 5/4) silty clay loam; moderate medium subangular blocky structure; friable; few very fine roots; few prominent very dark gray (10YR 3/1) organo-clay films and few distinct brown (10YR 5/3) clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) and brownish yellow (10YR 6/6) masses of oxidized iron in the matrix; few fine iron-manganese concretions throughout; slightly alkaline; clear smooth boundary.
- Btg1—43 to 49 inches; grayish brown (2.5Y 5/2) silty clay loam; weak coarse subangular blocky structure; friable; few very fine roots; few distinct very dark gray (10YR 3/1) organo-clay films and dark grayish brown (10YR 4/2) clay films on faces of peds; many medium prominent brownish yellow (10YR 6/8) and few fine prominent yellowish brown (10YR 5/8) masses of oxidized iron in the matrix; few fine iron-manganese concretions throughout; slightly alkaline; clear smooth boundary.
- 2Btg2—49 to 58 inches; grayish brown (2.5Y 5/2), stratified silt loam, loam, and sandy loam; weak coarse subangular blocky structure; friable; few very fine roots; few distinct very dark grayish brown (10YR 3/2) organo-clay films and dark grayish brown (10YR 4/2) clay films lining pores; common medium prominent brownish yellow (10YR 6/8) and few fine prominent yellowish brown (10YR 5/8) masses of oxidized iron in the matrix; few very fine iron-manganese concretions throughout; slightly alkaline; clear smooth boundary.
- 2Cg—58 to 62 inches; grayish brown (2.5Y 5/2), stratified sandy loam and loamy sand; massive; very friable; common medium prominent yellowish brown (10YR 5/8) and brownish yellow (10YR 6/8) masses of oxidized iron in the matrix; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches

Thickness of the loess: 40 to 60 inches

Depth to carbonates: More than 40 inches

Depth to the base of the argillic horizon: 40 to 70 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 to 3

Texture—silt loam

Content of rock fragments—none

Reaction—moderately acid to neutral

Bt or Btg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 or 5

Chroma—2 to 4

Texture—silty clay loam or silt loam

Content of rock fragments—none

Reaction—moderately acid to slightly alkaline

2Btg or 2Bt horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—2 to 8

Texture—stratified silt loam, sandy loam, loam, or clay loam

Content of rock fragments—none

Reaction—slightly acid to slightly alkaline

2Cg or 2C horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—2 to 8

Texture—stratified sandy loam, loamy sand, silt loam, or loam; stratified sand to loamy sand in the sandy substratum phase

Content of rock fragments—0 to 15 percent

Reaction—slightly acid to moderately alkaline

198A—Elburn silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains, stream terraces

Position on the landform: Summits, footslopes

Map Unit Composition

Elburn and similar soils: 91 percent

Dissimilar soils: 9 percent

Components of Minor Extent

Similar soils:

- Soils that have more sand in the upper part of the subsoil
- Soils that are deeper to loamy outwash

- Soils that have browner colors in the upper part of the subsoil
- Soils that have more clay in the subsoil

Dissimilar soils:

- The poorly drained Drummer and Sable soils in swales
- Soils that are underlain by sand or loamy sand
- Soils near streams that are subject to flooding

Properties and Qualities of the Elburn Soil

Parent material: Loess over stratified loamy outwash

Drainage class: Somewhat poorly drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 11.4 inches to a depth of 60 inches

Content of organic matter in the surface layer: 3.5 to 5.0 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: 1 foot, January through May

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 1

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

7198A—Elburn silt loam, 0 to 2 percent slopes, rarely flooded

Setting

Landform: Stream terraces

Map Unit Composition

Elburn and similar soils: 93 percent

Dissimilar soils: 7 percent

Components of Minor Extent

Similar soils:

- Soils that have more sand in the upper part of the subsoil
- Soils that are deeper to loamy outwash
- Soils that have browner colors in the upper part of the subsoil
- Soils that have more clay in the subsoil

Dissimilar soils:

- Soils that are underlain by sand or loamy sand
- Soils near streams that are subject to flooding
- The poorly drained Sawmill soils in swales

Properties and Qualities of the Elburn Soil

Parent material: Loess over loamy and sandy alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.5 to 5.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: 1 foot, January through May
Ponding: None
Frequency and most likely period of flooding: Rare, November through June
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 1
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

Elco Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Typical Pedon

Elco silt loam, 5 to 10 percent slopes, eroded, on a slope of 7 percent at an elevation of 615 feet above mean sea level; Macoupin County, Illinois; 300 feet west and 2,100 feet south of the northeast corner of sec. 8, T. 8 N., R. 8 W.; USGS Plainview, Illinois, topographic quadrangle; lat. 39 degrees 09 minutes 13.4 seconds N. and long. 89 degrees 59 minutes 56.7 seconds W.; UTM Zone 16S, Easting 0240842, Northing 4338120; NAD 83:

- Ap—0 to 8 inches; mixed grayish brown (10YR 5/2) and yellowish brown (10YR 5/4) silt loam, light gray (10YR 7/2) dry; moderate fine and medium granular structure; friable; common fine roots; slightly acid; abrupt smooth boundary.
- Bt1—8 to 17 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine and medium subangular blocky structure; friable; common fine roots; many distinct brown (10YR 5/3) clay films on faces of peds; few fine distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; moderately acid; clear smooth boundary.
- Bt2—17 to 23 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure parting to weak medium subangular blocky; friable; few fine roots; common distinct brown (10YR 5/3) clay films on faces of peds; few distinct light gray (10YR 7/2) (dry) silt coatings on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine spherical masses of oxidized iron-manganese throughout; moderately acid; clear smooth boundary.
- Bt3—23 to 31 inches; grayish brown (10YR 5/2) silty clay loam; weak coarse prismatic structure; friable; few fine roots; few faint brown (10YR 5/3) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses of

oxidized iron in the matrix; few fine spherical masses of oxidized iron-manganese throughout; moderately acid; abrupt smooth boundary.

2Bt4—31 to 43 inches; very dark gray (5Y 3/1) loam; weak coarse prismatic structure; firm; few distinct brown (10YR 5/3) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses of oxidized iron and common fine prominent strong brown (7.5YR 4/6) masses of oxidized iron-manganese in the matrix; slightly acid; clear smooth boundary.

2Bt5—43 to 60 inches; very dark gray (5Y 3/1) loam; weak coarse prismatic structure; firm; few distinct brown (10YR 5/3) clay films on faces of peds; few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron and few fine prominent strong brown (7.5YR 4/6) masses of oxidized iron-manganese in the matrix; neutral.

Range in Characteristics

Thickness of the loess: 20 to 40 inches

Depth to carbonates: More than 60 inches

Depth to the base of the argillic horizon: More than 60 inches

Ap or A horizon:

Hue—10YR

Value—3 or 4

Chroma—1 or 2

Texture—silt loam or silty clay loam

Content of rock fragments—none

Reaction—moderately acid to neutral

E horizon (where present):

Hue—10YR

Value—4 or 5

Chroma—3 or 4

Texture—silt loam

Content of rock fragments—none

Reaction—moderately acid to neutral

Bt or Btg horizon:

Hue—10YR or 7.5YR

Value—4 or 5

Chroma—3 to 6; ranges to 2 in the lower part

Texture—silty clay loam or silt loam

Content of rock fragments—none

Reaction—strongly acid to slightly alkaline

2Bt or 2Btg horizon:

Hue—5Y, 2.5Y, 10YR, or 7.5YR

Value—3 to 6

Chroma—1 to 6

Texture—loam, clay loam, silty clay loam, or silt loam

Content of rock fragments—0 to 10 percent

Reaction—strongly acid to slightly alkaline

3Bt or 3Btg horizon:

Hue—5Y, 2.5Y, 10YR, or 7.5YR

Value—3 to 6

Chroma—1 to 6

Texture—clay loam, loam, silty clay loam, silt loam, silty clay, or clay

Content of rock fragments—0 to 10 percent

Reaction—strongly acid to slightly alkaline

119C2—Elco silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines, till plains

Position on the landform: Backslopes, shoulders

Map Unit Composition

Elco and similar soils: 97 percent

Dissimilar soils: 3 percent

Components of Minor Extent

Similar soils:

- Soils that are severely eroded
- Soils that have slopes of more than 10 percent
- Soils that have slopes of less than 5 percent
- Soils in which the strongly developed paleosol is at a depth of more than 60 inches
- Soils that are well drained
- Soils that have more sand in the subsoil or substratum
- Soils that are more acid in the surface layer

Dissimilar soils:

- Soils near streams that are subject to flooding

Properties and Qualities of the Elco Soil

Parent material: Loess over a paleosol that formed in till

Drainage class: Moderately well drained

Slowest permeability within a depth of 40 inches: Slow

Permeability below a depth of 60 inches: Slow or moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 11.3 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1 to 2 percent

Shrink-swell potential: High

Depth and months of highest perched seasonal high water table: 2 feet, February through April

Ponding: None

Flooding: None

Accelerated erosion: The surface layer has been thinned by erosion.

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Medium

Susceptibility to water erosion: High

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3e

Prime farmland category: Not prime farmland

Hydric soil status: Not hydric

Flanagan Series

Taxonomic classification: Fine, smectitic, mesic Aquic Argiudolls

Typical Pedon

Flanagan silt loam, 0 to 2 percent slopes, at an elevation of 730 feet above mean sea level; Champaign County, Illinois; about 1 mile south of Champaign on the University of Illinois South Farm; 1,607 feet east and 1,405 feet north of the southwest corner of sec. 19, T. 19 N., R. 9 E.; USGS Urbana, Illinois, topographic quadrangle; lat. 40 degrees 05 minutes 14.1 seconds N. and long. 88 degrees 13 minutes 57.2 seconds W.; UTM Zone 16T, Easting 0394922, Northing 4438169; NAD 83:

- A1—0 to 8 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate medium granular structure; friable; slightly acid; gradual smooth boundary.
- A2—8 to 15 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium granular structure; friable; slightly acid; clear smooth boundary.
- A3—15 to 18 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; slightly acid; clear smooth boundary.
- Bt1—18 to 23 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine subangular blocky structure; firm; many distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine faint brown (10YR 4/3) masses of oxidized iron-manganese in the matrix; moderately acid; clear smooth boundary.
- Bt2—23 to 32 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate medium subangular blocky structure; firm; many distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; common fine faint brown (10YR 5/3 and 4/3) masses of oxidized iron-manganese in the matrix; moderately acid; clear smooth boundary.
- Bt3—32 to 38 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; many distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; common fine faint light yellowish brown (10YR 6/4) masses of oxidized iron-manganese and common fine distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; slightly acid; clear smooth boundary.
- Bt4—38 to 45 inches; 40 percent yellowish brown (10YR 5/6), 30 percent light brownish gray (10YR 6/2), and 30 percent brown (10YR 5/3) silt loam; weak medium subangular blocky structure; friable; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; slightly acid; gradual smooth boundary.
- 2Bt5—45 to 49 inches; 35 percent yellowish brown (10YR 5/4), 35 percent light olive brown (2.5Y 5/4), and 30 percent light brownish gray (10YR 6/2) silt loam; weak coarse subangular blocky structure; firm; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; 5 percent fine gravel; neutral; abrupt smooth boundary.
- 2C—49 to 60 inches; yellowish brown (10YR 5/4) loam; massive; firm; common fine and medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common medium prominent white (10YR 8/1) spherical weakly cemented calcium carbonate nodules throughout; 5 percent fine gravel; slightly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches

Thickness of the loess: 45 to 60 inches

Depth to carbonates: 45 to 65 inches

Depth to the base of the argillic horizon: 45 to 65 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 or 2

Texture—silt loam

Content of rock fragments—none

Reaction—moderately acid to neutral

Bt or Btg horizon:

Hue—10YR or 2.5Y

Value—4 or 5

Chroma—2 to 6

Texture—silty clay loam, silt loam, or silty clay

Content of rock fragments—none

Reaction—moderately acid to neutral

2Bt or 2Btg horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—1 to 6

Texture—loam, clay loam, silt loam, or silty clay loam

Content of rock fragments—1 to 15 percent

Reaction—slightly acid to slightly alkaline

2BC, 2BCg, or 2C horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—2 to 6

Texture—loam or clay loam

Content of rock fragments—1 to 15 percent by volume

Reaction—slightly alkaline to moderately alkaline

154A—Flanagan silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines

Position on the landform: Summits

Map Unit Composition

Flanagan and similar soils: 94 percent

Dissimilar soils: 6 percent

Components of Minor Extent

Similar soils:

- Soils that have not developed into the underlying till
- Soils that are underlain by water-worked silts above a depth of 60 inches
- Soils that have less clay in the subsoil
- Soils that have more than 60 inches of loess over the loamy till
- Soils that have slopes of more than 2 percent

- Soils that have a thin layer of sandy outwash between the loess and the till
- Soils that are eroded
- Soils that are moderately well drained

Dissimilar soils:

- The poorly drained Drummer soils in swales
- The poorly drained Harpster and Peotone soils in depressions

Properties and Qualities of the Flanagan Soil

Parent material: Loess over till

Drainage class: Somewhat poorly drained

Slowest permeability within a depth of 40 inches: Moderately slow

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 9.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 3.5 to 5.0 percent

Shrink-swell potential: High

Depth and months of highest apparent seasonal high water table: 1 foot, January through May

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 1

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Greenbush Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Mollic Hapludalfs

Typical Pedon

Greenbush silt loam, 2 to 5 percent slopes, on a slope of 2 percent at an elevation of 700 feet above mean sea level; Warren County, Illinois; about 2¾ miles south of Greenbush; 1,500 feet north and 1,500 feet west of the southeast corner of sec. 18, T. 8 N., R. 1 W.; USGS Greenbush, Illinois, topographic quadrangle; lat. 40 degrees 40 minutes 40.1 seconds N. and long. 90 degrees 32 minutes 48.3 seconds W.; UTM Zone 15T, Easting 0707334, Northing 4505887; NAD 83:

Ap—0 to 6 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate fine granular structure; friable; slightly acid; abrupt smooth boundary.

E—6 to 10 inches; dark grayish brown (10YR 4/2) silt loam; weak thin platy structure; friable; common faint very dark gray (10YR 3/1) organic coatings on faces of pedis; moderately acid; abrupt smooth boundary.

BE—10 to 17 inches; brown (10YR 4/3) silt loam; moderate medium platy structure parting to weak fine subangular blocky; friable; few distinct very dark gray (10YR 3/1) organic coatings and common distinct gray (10YR 6/1) (dry) silt coatings on faces of pedis; moderately acid; clear smooth boundary.

Bt1—17 to 29 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium prismatic structure parting to moderate fine and medium angular blocky; friable;

common faint dark yellowish brown (10YR 4/4) clay films on faces of peds;
common distinct gray (10YR 6/1) (dry) silt coatings on faces of peds; strongly
acid; gradual smooth boundary.

Bt2—29 to 38 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic
structure parting to moderate fine angular blocky; friable; common faint brown
(10YR 4/3) clay films on faces of peds; many faint light gray (10YR 7/2) (dry) silt
coatings on faces of peds; common medium distinct yellowish brown (10YR 5/6)
masses of oxidized iron in the matrix; common medium prominent gray (5Y 6/1)
iron depletions within peds; common prominent black (7.5YR 2.5/1) masses of
manganese oxide throughout; strongly acid; gradual wavy boundary.

Bt3—38 to 53 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic
structure parting to moderate fine angular blocky; friable; common faint brown
(10YR 4/3) clay films on faces of peds; many distinct light gray (10YR 7/2) (dry)
silt coatings on faces of peds; common medium distinct yellowish brown (10YR
5/6) masses of oxidized iron in the matrix; common medium prominent gray (5Y
6/1) iron depletions within peds; common distinct black (7.5YR 2.5/1) masses of
manganese oxide throughout; strongly acid; gradual wavy boundary.

Bc—53 to 75 inches; brown (10YR 5/3) and gray (5Y 6/2) silt loam; weak medium
and coarse prismatic structure parting to weak fine and medium angular blocky;
friable; few faint brown (10YR 4/3) clay films on faces of peds; few distinct light
gray (10YR 7/2) silt coatings on faces of peds; common medium distinct and
prominent yellowish brown (10YR 5/6) masses of iron accumulation; common
distinct and prominent black (7.5YR 2.5/1) masses of manganese oxide
throughout; moderately acid; gradual wavy boundary.

C—75 to 100 inches; yellowish brown (10YR 5/4) and gray (5Y 6/2) silt loam;
massive; friable; many medium faint and distinct light brownish gray (10YR 6/2)
iron depletions; many prominent black (7.5YR 2.5/1) masses of manganese oxide
throughout; moderately acid.

Range in Characteristics

Thickness of the mollic layer: 6 to 9 inches

Thickness of the loess: More than 80 inches

Depth to carbonates: More than 60 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 or 2

Texture—silt loam

Content of rock fragments—none

Reaction—moderately acid to neutral

E horizon (where present):

Hue—10YR

Value—3 to 5

Chroma—2 or 3

Texture—silt loam

Content of rock fragments—none

Reaction—strongly acid to slightly acid

Bt horizon:

Hue—10YR

Value—4 or 5

Chroma—3 to 6

Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—strongly acid to slightly acid

BC, BCt, BCtg, BCg, Cg, or C horizon:

Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—2 to 6
Texture—silt loam
Content of rock fragments—none
Reaction—moderately acid or slightly acid

675B—Greenbush silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines, till plains

Position on the landform: Shoulders, summits, footslopes

Map Unit Composition

Greenbush and similar soils: 95 percent

Dissimilar soils: 5 percent

Components of Minor Extent

Similar soils:

- Soils that have a thicker dark surface layer
- Soils that have a light-colored surface layer
- Soils that are eroded
- Soils that have more gray in the subsoil

Dissimilar soils:

- The somewhat poorly drained Ipava and Clarksdale soils in swales
- The poorly drained Sable and Denny soils in swales

Properties and Qualities of the Greenbush Soil

Parent material: Loess

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 11.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2 to 3 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: 4 feet, February through April

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: Moderate for steel and high for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Harpster Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Calciaquolls

Typical Pedon

Harpster silty clay loam, 0 to 2 percent slopes, at an elevation of 740 feet above mean sea level; Ford County, Illinois; 855 feet south and 70 feet west of the northeast corner of sec. 20, T. 23 N., R. 7 E.; USGS Gibson City West, Illinois, topographic quadrangle; lat. 40 degrees 26 minutes 24.1 seconds N. and long. 88 degrees 25 minutes 23.2 seconds W.; UTM Zone 16T, Easting 0379305, Northing 4477571; NAD 83:

Apk—0 to 9 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; weak fine granular structure; friable; common very fine roots; many snail shells; strongly effervescent (20 percent calcium carbonate); moderately alkaline; abrupt smooth boundary.

Ak—9 to 18 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; weak fine and medium granular structure; firm; common very fine roots; many snail shells; strongly effervescent (18 percent calcium carbonate); moderately alkaline; clear smooth boundary.

Bg1—18 to 25 inches; dark grayish brown (2.5Y 4/2) silty clay loam; weak fine and medium angular blocky structure; firm; common very fine roots; many distinct very dark gray (10YR 3/1) organic coatings on faces of peds; common fine distinct light olive brown (2.5Y 5/4) masses of oxidized iron-manganese in the matrix; few snail shells; slightly effervescent (7 percent calcium carbonate); moderately alkaline; gradual smooth boundary.

Bg2—25 to 31 inches; dark gray (5Y 4/1) silty clay loam; moderate medium prismatic structure parting to moderate fine and medium angular blocky; firm; few very fine roots; many distinct very dark gray (10YR 3/1) organic coatings on faces of peds; few fine prominent dark yellowish brown (10YR 4/4) and few fine distinct olive (5Y 4/4) masses of oxidized iron-manganese in the matrix; few snail shells; slightly effervescent (5 percent calcium carbonate); slightly alkaline; gradual smooth boundary.

Bg3—31 to 36 inches; dark gray (5Y 4/1) silty clay loam; weak coarse prismatic structure parting to weak medium angular blocky; firm; few very fine roots; common distinct very dark gray (10YR 3/1) organic coatings on faces of peds; common medium distinct olive (5Y 4/4) masses of oxidized iron-manganese and few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; 2 percent gravel; slightly effervescent (2 percent calcium carbonate); slightly alkaline; gradual smooth boundary.

Bg4—36 to 41 inches; 40 percent olive brown (2.5Y 4/4), 35 percent olive yellow (2.5Y 6/6), and 25 percent gray (5Y 5/1) silty clay loam; weak coarse angular blocky structure; firm; few very fine roots; 2 percent gravel; slightly effervescent (2 percent calcium carbonate); slightly alkaline; gradual smooth boundary.

Cg1—41 to 56 inches; 55 percent gray (5Y 5/1), 40 percent light olive brown (2.5Y 5/6), and 5 percent dark yellowish brown (10YR 4/4) silt loam; massive; firm; 1 percent gravel; strongly effervescent (16 percent calcium carbonate); moderately alkaline; clear smooth boundary.

Cg2—56 to 60 inches; gray (10YR 5/1) loam; massive; friable; 5 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches

Thickness of the loess or silty colluvium: 36 to 60 inches

Depth to carbonates: 0 to 8 inches

Depth to the base of the cambic horizon: 22 to 46 inches

Apk or Ak horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—2 to 3

Chroma—0 or 1

Texture—silty clay loam

Content of rock fragments—none

Reaction—slightly alkaline or moderately alkaline

Bg horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—3 to 6

Chroma—0 to 2

Texture—silty clay loam, silt loam, clay loam, or loam

Content of rock fragments—0 to 3 percent

Reaction—slightly alkaline or moderately alkaline

Cg horizon:

Hue—7.5YR, 10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 to 8

Texture—silt loam or loam

Content of rock fragments—0 to 3 percent

Reaction—slightly alkaline or moderately alkaline

67A—Harpster silty clay loam, 0 to 2 percent slopes

Setting

Landform: Depressions on outwash plains and ground moraines

Map Unit Composition

Harpster and similar soils: 97 percent

Dissimilar soils: 3 percent

Components of Minor Extent

Similar soils:

- Soils that have more sand below a depth of 40 inches
- Soils that have a thicker dark surface layer
- Soils that have more clay in the subsoil
- Soils that do not have carbonates above a depth of 16 inches
- Soils that have less than 7 percent sand below a depth of 36 inches

Dissimilar soils:

- Soils near streams that are subject to flooding

Properties and Qualities of the Harpster Soil

Parent material: Calcareous fine-silty colluvium over glacial drift

Drainage class: Poorly drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 12 inches to a depth of 60 inches

Content of organic matter in the surface layer: 4.5 to 6.5 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: At the surface all year

Depth and months of deepest ponding: 0.2 foot, January through May

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and low for concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2w

Prime farmland category: Prime farmland where drained

Hydric soil status: Hydric

Hartsburg Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Endoaquolls

Typical Pedon

Hartsburg silty clay loam, 0 to 2 percent slopes, at an elevation of 571 feet above mean sea level; Logan County, Illinois; about 4 miles southwest of Emden, Illinois; 660 feet west and 40 feet north of the southeast corner of sec. 23, T. 21 N., R. 4 W.; USGS New Holland, Illinois, topographic quadrangle; lat. 40 degrees 14 minutes 58.2 seconds N. and long. 89 degrees 31 minutes 28.4 seconds W.; UTM Zone 16T, Easting 0285280, Northing 4458507; NAD 83:

Ap—0 to 7 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; slightly acid; abrupt smooth boundary.

A1—7 to 12 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; few very fine roots; slightly acid; clear smooth boundary.

A2—12 to 17 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; moderate medium granular structure; firm; few very fine roots; few fine faint spherical black (7.5YR 2.5/1) weakly cemented iron-manganese concretions with diffuse boundaries along root channels and pores; few fine faint dark grayish brown (2.5Y 4/2) iron depletions in the matrix; neutral; clear smooth boundary.

Bg—17 to 21 inches; dark grayish brown (2.5Y 4/2) silty clay loam; weak fine and medium subangular blocky structure; firm; few very fine roots; common distinct very dark gray (10YR 3/1) organic coatings on faces of peds; few fine prominent spherical black (7.5YR 2.5/1) weakly cemented iron-manganese concretions with diffuse boundaries lining root channels and pores; common fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; common distinct very dark gray (10YR 3/1) krotovinas; neutral; clear smooth boundary.

- Bkg—21 to 30 inches; gray (5Y 5/1) silty clay loam; moderate medium subangular blocky structure; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) and grayish brown (2.5Y 5/2) pressure faces on faces of peds; few fine prominent spherical black (7.5YR 2.5/1) weakly cemented iron-manganese concretions with diffuse boundaries lining root channels and pores; common medium prominent yellowish brown (10YR 5/8) and strong brown (7.5YR 5/8) masses of oxidized iron in the matrix; few fine and medium prominent spherical white (10YR 8/1) weakly cemented calcium carbonate concretions throughout; slightly effervescent; common prominent very dark gray (10YR 3/1) krotovinas; slightly alkaline; abrupt wavy boundary.
- BCkg—30 to 34 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak coarse subangular blocky structure; firm; many distinct gray (N 5/) and grayish brown (2.5Y 5/2) linings in pores and root channels; few fine prominent spherical black (7.5YR 2.5/1) weakly cemented iron-manganese concretions with diffuse boundaries lining pores; many medium prominent yellowish brown (10YR 5/8) masses of oxidized iron in the matrix; many medium and coarse distinct spherical white (10YR 8/1) weakly cemented calcium carbonate concretions throughout; violently effervescent among concretions, slightly effervescent in the matrix; common prominent very dark gray (10YR 3/1) krotovinas; slightly alkaline; clear wavy boundary.
- Cg—34 to 60 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; many medium prominent strong brown (7.5YR 5/8) masses of iron accumulation with diffuse boundaries lining pores; few medium spherical white (10YR 8/1) weakly cemented calcium carbonate concretions throughout; strongly effervescent; common prominent very dark gray (10YR 3/1) krotovinas; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches

Thickness of the loess: More than 40 inches

Depth to carbonates: 15 to 35 inches

Depth to the base of the cambic horizon: 24 to 50 inches

Ap or A horizon:

Hue—10YR or N

Value—2 to 3

Chroma—0 to 2

Texture—silty clay loam

Content of rock fragments—none

Reaction—slightly acid to slightly alkaline

Bg, Bkg, or BCkg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—3 to 6

Chroma—1 or 2

Texture—silty clay loam or silt loam

Content of rock fragments—none

Reaction—neutral to moderately alkaline

Cg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—5 or 6

Chroma—1 or 2

Texture—silt loam or loam

Content of rock fragments—0 to 7 percent

Reaction—slightly alkaline or moderately alkaline

244A—Hartsburg silty clay loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains, ground moraines

Position on the landform: Toeslopes

Map Unit Composition

Hartsburg and similar soils: 95 percent

Dissimilar soils: 5 percent

Components of Minor Extent

Similar soils:

- Soils that have more clay in the subsoil
- Soils that have more sand in the subsoil
- Soils that have less sand in the substratum
- Soils that are developed to a greater depth
- Soils that do not have carbonates above a depth of 40 inches
- Soils that have carbonates above a depth of 16 inches

Dissimilar soils:

- The somewhat poorly drained Flanagan soils in landscape positions above those of the Hartsburg soil
- The moderately well drained Catlin soils in landscape positions above those of the Hartsburg soil
- The poorly drained Peotone soils in depressions
- The poorly drained Drummer and Harpster soils in landscape positions similar to those of the Hartsburg soil

Properties and Qualities of the Hartsburg Soil

Parent material: Loess over silty lacustrine deposits

Drainage class: Poorly drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 10.4 inches to a depth of 60 inches

Content of organic matter in the surface layer: 4.5 to 6.0 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: At the surface,
January through May

Ponding (average depth during the wettest periods or after heavy rainfall): 0.2 foot

Frequency and most likely period of ponding: Frequent, November through June

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and low for concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2w

Prime farmland category: Prime farmland where drained

Hydric soil status: Hydric

Huntsville Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Cumulic Hapludolls

Typical Pedon

Huntsville silt loam, 0 to 2 percent slopes, frequently flooded, at an elevation of 495 feet above mean sea level; Fulton County, Illinois; 2,295 feet north and 2,625 feet east of the southwest corner of sec. 31, T. 7 N., R. 2 E.; USGS Blyton, Illinois, topographic quadrangle; lat. 40 degrees 32 minutes 44 seconds N. and long. 90 degrees 19 minutes 14 seconds W.; UTM Zone 15T, Easting 0726899, Northing 4491766; NAD 83:

- Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; common very fine and few fine roots; neutral; clear smooth boundary.
- A1—8 to 18 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak medium subangular blocky structure parting to weak fine granular; friable; few very fine roots; common distinct very dark gray (10YR 3/1) organic coatings on faces of peds; neutral; gradual smooth boundary.
- A2—18 to 32 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine and medium subangular blocky structure; friable; few distinct very dark gray (10YR 3/1) organic coatings on faces of peds; neutral; gradual smooth boundary.
- A3—32 to 43 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak medium subangular blocky structure; friable; few distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; slightly acid; gradual smooth boundary.
- AC—43 to 60 inches; brown (10YR 4/3) silt loam; weak coarse subangular blocky structure; friable; few distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; slightly acid.

Range in Characteristics

Thickness of the mollic epipedon: More than 24 inches

Depth to carbonates: More than 60 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 to 3

Texture—silt loam

Content of rock fragments—typically none

Reaction—moderately acid to slightly alkaline

AB horizon (where present):

Hue—10YR

Value—2 to 3

Chroma—1 to 3

Texture—silt loam

Content of rock fragments—typically none

Reaction—slightly acid to slightly alkaline

AC or Bw horizon (where present):

Hue—10YR

Value—3 to 5

Chroma—3 or 4

Texture—silt loam or silty clay loam; thin strata of silt loam, loam, or clay loam
below a depth of 30 inches
Content of rock fragments—0 to 5 percent
Reaction—slightly acid to slightly alkaline

C horizon:

Hue—10YR
Value—3 to 5
Chroma—3 or 4
Texture—silt loam or silty clay loam with thin strata of fine sand to silt loam
Content of rock fragments—0 to 5 percent
Reaction—slightly acid to slightly alkaline

**3077A—Huntsville silt loam, 0 to 2 percent slopes,
frequently flooded**

Setting

Landform: Flood plains

Map Unit Composition

Huntsville and similar soils: 91 percent
Dissimilar soils: 9 percent

Components of Minor Extent

Similar soils:

- Soils that have more sand in the subsoil
- Soils that have a dark surface layer less than 24 inches thick
- Soils that are subject to occasional or rare flooding
- Somewhat poorly drained soils in landscape positions below those of the Huntsville soil
- Soils that have slightly more development in the profile
- Soils that have slightly more clay below the surface layer

Dissimilar soils:

- Soils that are not subject to flooding
- The poorly drained Sawmill soils in swales; in landscape positions below those of the Huntsville soil
- The somewhat poorly drained Tice soils in flat areas; in landscape positions below those of the Huntsville soil

Properties and Qualities of the Huntsville Soil

Parent material: Alluvium

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 13.4 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2 to 4 percent

Shrink-swell potential: Low

Depth and months of highest apparent seasonal high water table: 4 feet, February through April

Ponding: None

Frequency and most likely period of flooding: Frequent, November through June

Potential for frost action: High

Hazard of corrosion: Low for steel and moderate for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3w

Prime farmland category: Prime farmland where protected from flooding or not frequently flooded during the growing season

Hydric soil status: Not hydric

Ipava Series

Taxonomic classification: Fine, smectitic, mesic Aquic Argiudolls

Typical Pedon

Ipava silt loam, 0 to 2 percent slopes, at an elevation of 804 feet above mean sea level; Knox County, Illinois; 2,046 feet west and 594 feet north of the southeast corner of sec. 25, T. 13 N., R. 2 E.; USGS Oneida, Illinois, topographic quadrangle; lat. 41 degrees 04 minutes 40.1 seconds N. and long. 90 degrees 13 minutes 03.5 seconds W.; UTM Zone 15T, Easting 0733739, Northing 4551126; NAD 83:

Ap—0 to 10 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate fine and medium subangular blocky structure; friable; moderately acid; abrupt smooth boundary.

A—10 to 18 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; weak fine and medium subangular blocky structure; friable; common distinct black (10YR 2/1) organic coatings on faces of peds; moderately acid; clear smooth boundary.

BA—18 to 24 inches; brown (10YR 4/3) silty clay loam; moderate fine and medium subangular blocky structure; friable; common distinct very dark gray (10YR 3/1) organic coatings on faces of peds; few fine distinct light brownish gray (2.5Y 6/2) iron depletions in the matrix; few fine distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; moderately acid; clear smooth boundary.

Btg1—24 to 31 inches; dark grayish brown (10YR 4/2) silty clay; moderate fine prismatic structure parting to moderate fine subangular blocky; friable; common faint dark gray (10YR 4/1) clay films on faces of peds; few fine distinct light brownish gray (2.5Y 6/2) iron depletions in the matrix; common fine prominent yellowish brown (10YR 5/8) masses of oxidized iron in the matrix; slightly acid; clear smooth boundary.

Btg2—31 to 37 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; friable; common distinct dark gray (10YR 4/1) clay films on faces of peds; few fine prominent black (7.5YR 2.5/1) coatings of oxidized iron-manganese on faces of peds; common fine faint light brownish gray (2.5Y 6/2) iron depletions in the matrix; common medium prominent strong brown (7.5YR 5/8) masses of oxidized iron in the matrix; few fine prominent black (7.5YR 2.5/1) very weakly cemented iron-manganese concretions throughout; slightly alkaline; gradual smooth boundary.

BCg—37 to 50 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; friable; few distinct very dark grayish brown (10YR 3/2) organo-clay films lining pores and on a few vertical faces of peds; common fine black (7.5YR 2.5/1) coatings of oxidized iron-manganese on faces of peds; common fine faint light brownish gray (2.5Y 6/2) iron depletions in the matrix; common fine prominent strong brown

(7.5YR 5/8) masses of oxidized iron in the matrix; few fine prominent black (7.5YR 2.5/1) very weakly cemented iron-manganese concretions throughout; slightly alkaline; clear smooth boundary.

Cg—50 to 60 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; few faint very dark grayish brown (10YR 3/2) organo-clay films occurring as linings in pores; few fine prominent black (7.5YR 2.5/1) coatings of oxidized iron-manganese on faces of vertical cracks; common fine prominent yellowish brown (10YR 5/8) masses of oxidized iron in the matrix; few fine prominent black (7.5YR 2.5/1) very weakly cemented iron-manganese concretions throughout; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches

Thickness of the loess: More than 60 inches

Depth to carbonates: More than 40 inches

Depth to the base of the argillic horizon: 35 to 55 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 or 2

Texture—silt loam or silty clay loam

Content of rock fragments—none

Reaction—moderately acid to neutral

BA, Bt, Btg, or BCg horizon:

Hue—10YR or 2.5Y

Value—3 to 6

Chroma—2 to 4

Texture—silty clay loam, silt loam, or silty clay

Content of rock fragments—none

Reaction—moderately acid to slightly alkaline

Cg horizon:

Hue—10YR or 2.5Y

Value—5 or 6

Chroma—1 to 4

Texture—silt loam

Content of rock fragments—none

Reaction—slightly acid to moderately alkaline

43A—Ipava silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines, till plains

Position on the landform: Summits, footslopes

Map Unit Composition

Ipava and similar soils: 88 percent

Dissimilar soils: 12 percent

Components of Minor Extent

Similar soils:

- Soils that are developed to a greater depth
- Soils that have more sand below a depth of 40 inches

Soil Survey of Macon County, Illinois

- Soils that have water-worked silts below a depth of 40 inches
- Soils that have less clay in the subsoil
- Soils that have a thin dark surface layer
- Soils that are more gray in the subsoil

Dissimilar soils:

- Soils that have loamy sand or sand within a depth of 80 inches
- The poorly drained Denny and Sable soils in swales

Properties and Qualities of the Ipava Soil

Parent material: Loess

Drainage class: Somewhat poorly drained

Slowest permeability within a depth of 40 inches: Moderately slow

Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 11.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 3.5 to 5.0 percent

Shrink-swell potential: High

Depth and months of highest apparent seasonal high water table: 1 foot, January through May

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 1

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Lawson Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Cumulic Hapludolls

Typical Pedon

Lawson silt loam, 0 to 2 percent slopes, frequently flooded, at an elevation of 638 feet above mean sea level; Whiteside County, Illinois; 170 feet north and 1,190 feet east of the southwest corner of sec. 18, T. 21 N., R. 7 E.; USGS Sterling, Illinois, topographic quadrangle; lat. 41 degrees 48 minutes 06.2 seconds N. and long. 89 degrees 44 minutes 35.1 seconds W.; UTM Zone 16T, Easting 0272111, Northing 4631400; NAD 83:

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium granular structure; friable; neutral; abrupt smooth boundary.

A1—8 to 17 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure parting to moderate fine granular; friable; many faint black (10YR 2/1) organic coatings on faces of peds; slightly acid; gradual smooth boundary.

A2—17 to 30 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure parting to moderate

fine granular; friable; few faint black (10YR 2/1) organic coatings on faces of peds; few fine faint brown (10YR 4/3) masses of oxidized iron-manganese in the matrix; slightly acid; clear smooth boundary.

A3—30 to 35 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure; friable; few faint very dark gray (10YR 3/1) organic coatings on faces of peds; few fine faint dark grayish brown (10YR 4/2) iron depletions and few fine faint brown (10YR 4/3) masses of oxidized iron-manganese in the matrix; slightly acid; clear smooth boundary.

AC—35 to 44 inches; dark grayish brown (10YR 4/2) silt loam; weak medium subangular blocky structure; friable; many faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; slightly acid; clear smooth boundary.

Cg1—44 to 51 inches; grayish brown (2.5Y 5/2) silt loam; massive; friable; few fine faint gray (10YR 5/1) iron depletions in the matrix; few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; neutral; clear smooth boundary.

Cg2—51 to 60 inches; grayish brown (10YR 5/2) and dark grayish brown (2.5Y 4/2) loam; massive; friable; few fine faint gray (10YR 5/1) iron depletions in the matrix; few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 24 to 36 inches

Depth to carbonates: Typically more than 60 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 or 2

Texture—silt loam; silty clay loam in layers below the surface layer in some pedons

Content of rock fragments—0 to 1 percent

Reaction—slightly acid or neutral

C or Cg horizon:

Hue—10YR or 2.5Y

Value—3 to 6

Chroma—1 to 3

Texture—silt loam, silty clay loam, or loam; thin strata of coarser textures in some pedons

Content of rock fragments—0 to 3 percent

Reaction—neutral or slightly alkaline

3451A—Lawson silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Lawson and similar soils: 85 percent

Dissimilar soils: 15 percent

Components of Minor Extent

Similar soils:

- Soils that are more developed
- Soils that have more than 15 percent sand above a depth of 40 inches
- Soils that are moderately well drained
- Soils that have a buried surface layer within a depth of 60 inches
- Soils that have light-colored silty overwash over the thick dark surface layer
- Soils that have more clay in the surface layer

Dissimilar soils:

- Soil that are underlain by sand or loamy sand
- Soils that are well drained
- The poorly drained and very poorly drained Sawmill soils in swales and backswamps

Properties and Qualities of the Lawson Soil

Parent material: Silty alluvium

Drainage class: Somewhat poorly drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 11.4 inches to a depth of 60 inches

Content of organic matter in the surface layer: 3.5 to 7.0 percent

Shrink-swell potential: Low

Depth and months of highest apparent seasonal high water table: 1 foot, January through May

Ponding: None

Frequency and most likely period of flooding: Frequent, November through June

Potential for frost action: High

Hazard of corrosion: High for steel and low for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3w

Prime farmland category: Prime farmland where protected from flooding or not frequently flooded during the growing season

Hydric soil status: Not hydric

Milford Series

Taxonomic classification: Fine, mixed, superactive, mesic Typic Endoaquolls

Typical Pedon

Milford silty clay loam, in an area of Drummer-Milford silty clay loams, 0 to 2 percent slopes, at an elevation of 646 feet above mean sea level; Moultrie County, Illinois; 1,170 feet north and 1,605 feet west of the southeast corner of sec. 20, T. 13 N., R. 6 E.; USGS Sullivan, Illinois, topographic quadrangle; lat. 39 degrees 33 minutes 10.8 seconds N. and long. 88 degrees 33 minutes 09.9 seconds W.; UTM Zone 16S, Easting 0366594, Northing 4379299; NAD 83:

Soil Survey of Macon County, Illinois

- Ap—0 to 9 inches; black (2.5Y 2.5/1) silty clay loam; moderate fine subangular blocky structure parting to moderate fine granular; friable; common very fine and fine roots throughout; slightly acid; abrupt smooth boundary.
- A—9 to 14 inches; very dark gray (2.5Y 3/1) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots throughout; many distinct black (2.5Y 2.5/1) organo-clay films on vertical faces of peds; common fine and medium faint dark gray (2.5Y 4/1) iron depletions in the matrix; neutral; clear wavy boundary.
- Btg1—14 to 25 inches; gray (10YR 5/1) silty clay; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots throughout; many distinct very dark gray (10YR 3/1) clay films on faces of peds; few fine and medium prominent yellowish brown (10YR 5/6) masses of oxidized iron and few medium distinct yellowish brown (10YR 5/4) masses of oxidized iron-manganese in the matrix; neutral; clear wavy boundary.
- Btg2—25 to 45 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots throughout and on faces of peds; many distinct gray (2.5Y 5/1) clay films, common distinct dark gray (10YR 4/1) clay films, and few distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; many fine and medium prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; neutral; clear wavy boundary.
- 2Btg3—45 to 75 inches; 85 percent grayish brown (10YR 5/2) and 15 percent yellowish brown (10YR 5/6), stratified silt loam; weak coarse prismatic structure; firm; few very fine and fine roots throughout; common distinct gray (10YR 5/1) clay films on faces of peds and few prominent black (2.5Y 2.5/1) organo-clay films lining root channels and pores; few fine distinct black (2.5Y 2.5/1) coatings of oxidized iron-manganese in the matrix; slightly alkaline; abrupt wavy boundary.
- 2BCg—75 to 93 inches; gray (2.5Y 6/1) silt loam; weak very coarse prismatic structure; firm; few very fine roots throughout; many prominent black (2.5Y 2.5/1) organo-clay films lining root channels and pores; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches

Thickness of the loess or silty lacustrine material: 40 to 60 inches

Depth to carbonates: More than 40 inches

Depth to the base of the cambic horizon: More than 36 inches

Ap or A horizon:

Hue—10YR, 2.5Y, or N

Value—2 to 3

Chroma—0 to 2

Texture—silty clay loam

Content of rock fragments—0 to 1 percent

Reaction—moderately acid to neutral

Btg or Bg horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—4 to 6

Chroma—0 to 2

Texture—silty clay or silty clay loam

Content of rock fragments—0 to 1 percent

Reaction—slightly acid to slightly alkaline

2Btg, 2BCtg, or 2BCg horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—4 to 6

Chroma—0 to 2
Texture—silt loam or clay loam
Content of rock fragments—0 to 5 percent
Reaction—neutral to moderately alkaline

722A—Drummer-Milford silty clay loams, 0 to 2 percent slopes

Setting

Landform: Outwash plains
Position on the landform: Toeslopes

Map Unit Composition

Drummer and similar soils: 60 percent
Milford and similar soils: 35 percent
Dissimilar soils: 5 percent

Components of Minor Extent

Similar soils:

- Somewhat poorly drained soils on side slopes and rises; in positions above those of the Drummer and Milford soils

Dissimilar soils:

- Soils near streams that are subject to flooding
- The moderately well drained Dana and well drained Osco soils on side slopes and rises; in positions above those of the Drummer and Milford soils

Properties and Qualities of the Drummer Soil

Parent material: Loess over stratified loamy outwash
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 4.5 to 7.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: At the surface, January through May
Ponding (average depth during the wettest periods or after heavy rainfall): 0.2 foot
Frequency and most likely period of ponding: Frequent, November through June
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Properties and Qualities of the Milford Soil

Parent material: Loess over silty and clayey lacustrine deposits
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches

Available water capacity: About 8.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 4.5 to 6.0 percent

Shrink-swell potential: High

Depth and months of highest apparent seasonal high water table: At the surface,
January through May

Ponding (average depth during the wettest periods or after heavy rainfall): 0.2 foot

Frequency and most likely period of ponding: Frequent, November through June

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and low for concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderate

Interpretive Groups

Land capability classification: Drummer—2w; Milford—2w

Prime farmland category: Prime farmland where drained

Hydric soil status: Drummer—hydric; Milford—hydric

M-W—Miscellaneous water

This map unit consists of manmade water bodies that are used for industrial, sanitary, or mining applications and that contain water most of the year. The water in these areas is typically not potable and is unsuitable for either fishing or swimming.

802B—Orthents, loamy, undulating

Setting

Landform: Leveled land, cut and fill (for roads, railroads, etc.)

Map Unit Composition

Orthents and similar soils: 85 percent

Dissimilar soils: 15 percent

Components of Minor Extent

Similar soils:

- Soils that have less silt in the subsoil
- Soils that have more gravel

Dissimilar soils:

- Soils near streams that are subject to flooding
- Soils that are very steep
- The poorly drained Aquents in swales
- Soils that contain nonsoil material or objects
- The poorly drained Drummer soils in swales

Properties and Qualities of the Orthents

Parent material: Earthy fill

Drainage class: Moderately well drained

Slowest permeability within a depth of 40 inches: Slow

Permeability below a depth of 60 inches: Slow to moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 8.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: 3.3 feet, February through April

Ponding: None

Flooding: None

Potential for frost action: Moderate

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3e

Prime farmland category: Not prime farmland

Hydric soil status: Not hydric

802D—Orthents, loamy, rolling

Setting

Landform: Cut and fill (for roads, railroads, etc.)

Map Unit Composition

Orthents and similar soils: 90 percent

Dissimilar soils: 10 percent

Components of Minor Extent

Similar soils:

- Soils that have less silt in the subsoil
- Soils that have more gravel
- Soils in abandoned sand pits
- Soils in abandoned gravel pits

Dissimilar soils:

- Soils near streams that are subject to flooding
- Soils that are very steep
- The poorly drained Aquents in swales
- Soils that contain nonsoil material or objects
- The poorly drained Drummer soils in swales
- The poorly drained Sawmill soils on flood plains

Properties and Qualities of the Orthents

Parent material: Earthy cut and fill

Drainage class: Moderately well drained

Slowest permeability within a depth of 40 inches: Slow

Permeability below a depth of 60 inches: Slow to moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 7.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: 3.3 feet, February through April

Ponding: None

Flooding: None

Potential for frost action: Moderate

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Medium

Susceptibility to water erosion: High

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 4e

Prime farmland category: Not prime farmland

Hydric soil status: Not hydric

7802B—Orthents, loamy, undulating, rarely flooded

Setting

Landform: Leveled land, cut and fill (for roads, railroads, etc.)

Map Unit Composition

Orthents and similar soils: 85 percent

Dissimilar soils: 15 percent

Components of Minor Extent

Similar soils:

- Soils that have less silt in the subsoil
- Soils that have more gravel
- Soils in abandoned sand pits
- Soils in abandoned gravel pits

Dissimilar soils:

- Soils that are subject to frequent flooding
- Soils that are very steep
- The poorly drained Drummer soils and Aquents in swales
- Soils that contain nonsoil material or objects
- The poorly drained Sawmill soils on flood plains

Properties and Qualities of the Orthents

Parent material: Earthy fill

Drainage class: Moderately well drained

Slowest permeability within a depth of 40 inches: Slow

Permeability below a depth of 60 inches: Slow to moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 8.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: 3.3 feet, February through April

Ponding: None

Frequency and most likely period of flooding: Rare, November through June

Potential for frost action: Moderate

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3e

Prime farmland category: Not prime farmland

Hydric soil status: Not hydric

Osco Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Argiudolls

Typical Pedon

Osco silt loam, 2 to 5 percent slopes, on a slope of 3 percent at an elevation of 858 feet above mean sea level; Carroll County, Illinois; 88 feet west and 316 feet north of the southeast corner of sec. 23, T. 24 N., R. 6 E.; USGS Lanark, Illinois, topographic quadrangle; lat. 42 degrees 03 minutes 13.6 seconds N. and long. 89 degrees 45 minutes 48.6 seconds W.; UTM Zone 16T, Easting 0271317, Northing 4659442; NAD 83:

- Ap—0 to 10 inches; very dark brown (10YR 2/2) and black (10YR 2/1) silt loam, very dark grayish brown (10YR 3/2) dry; moderate fine granular structure; friable; slightly acid; clear smooth boundary.
- A—10 to 14 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium and coarse granular structure; friable; strongly acid; clear smooth boundary.
- BA—14 to 20 inches; dark yellowish brown (10YR 3/4) and dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine subangular blocky structure; friable; few distinct light brownish gray (10YR 6/2) (dry) silt coatings on faces of peds; many roots and common earthworm casts and holes; strongly acid; clear smooth boundary.
- Bt1—20 to 26 inches; brown (10YR 4/3) silty clay loam; moderate fine subangular blocky structure; friable; common faint dark brown (10YR 3/3) organo-clay films on faces of peds; few distinct gray (10YR 6/1) (dry) silt coatings on faces of peds; strongly acid; clear smooth boundary.
- Bt2—26 to 37 inches; dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; many faint dark yellowish brown (10YR 4/4) clay films and common distinct light brownish gray (10YR 6/2) (dry) silt coatings on faces of peds; common fine faint brown (10YR 5/3) iron depletions and common medium prominent strong brown (7.5YR 5/8) masses of oxidized iron in the matrix; many prominent very dark gray (N 3/) and distinct dark brown (7.5YR 3/2) iron-manganese concretions throughout; strongly acid; clear smooth boundary.
- Bt3—37 to 45 inches; light yellowish brown (10YR 6/4) silty clay loam; moderate coarse subangular blocky structure; many faint dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and few medium prominent strong brown (7.5YR 5/8) masses of oxidized iron in the matrix; many prominent dark brown (7.5YR 3/2) iron-manganese concretions throughout; strongly acid; gradual smooth boundary.
- BC—45 to 55 inches; yellowish brown (10YR 5/4) and brown (10YR 4/3) silty clay loam; weak coarse angular blocky structure; friable; few fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; strongly acid; gradual smooth boundary.
- C—55 to 60 inches; yellowish brown (10YR 5/4 and 5/6) and brown (10YR 4/3) silt loam; massive; some vertical partings; friable; many fine distinct and prominent grayish brown (10YR 5/2) iron depletions in the matrix; moderately acid.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 18 inches

Thickness of the loess: More than 60 inches

Depth to carbonates: More than 48 inches

Depth to the base of the argillic horizon: 36 to 66 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 or 2

Texture—silt loam

Content of rock fragments—none

Reaction—strongly acid to neutral

BA or Bt horizon (where present):

Hue—10YR

Value—3 to 6

Chroma—3 or 4

Texture—silty clay loam or silt loam

Content of rock fragments—none

Reaction—strongly acid to neutral

BC or C horizon:

Hue—10YR; 2.5Y below a depth of 40 inches in some pedons

Value—4 or 5

Chroma—2 to 6

Texture—silt loam or silty clay loam

Content of rock fragments—none

Reaction—moderately acid to slightly alkaline

86B—Osco silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines, till plains

Position on the landform: Summits, shoulders

Map Unit Composition

Osco and similar soils: 90 percent

Dissimilar soils: 10 percent

Components of Minor Extent

Similar soils:

- Moderately well drained soils in landscape positions similar to those of the Osco soil
- Soils that are eroded
- Soils that have slopes of less than 2 percent
- Soils that have slopes of more than 5 percent
- Soils that have more sand in the substratum

Dissimilar soils:

- The somewhat poorly drained Elburn and Ipava soils in swales; in landscape positions below those of the Osco soil
- The poorly drained Denny and Sable soils in swales

Properties and Qualities of the Osco Soil

Parent material: Loess

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 11.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 3 to 4 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: 4 feet, February through April

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: Moderate for steel and concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Palms Series

Taxonomic classification: Loamy, mixed, euic, mesic Terric Haplosaprists

Typical Pedon

Palms silty clay loam, 0 to 2 percent slopes, frequently flooded, overwash, at an elevation of 641 feet above mean sea level; Macon County, Illinois; 240 feet north and 460 feet east of the southwest corner of sec. 11, T. 18 N., R. 1 E.; USGS Kenney, Illinois, topographic quadrangle; lat. 40 degrees 01 minute 15.6 seconds N. and long. 89 degrees 03 minutes 54.4 seconds W.; UTM Zone 16T, Easting 0323771, Northing 4432130; NAD 83:

Ap—0 to 8 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; moderate coarse granular structure; friable; few medium prominent strong brown (7.5YR 4/6) masses of oxidized iron-manganese in the matrix; neutral; abrupt smooth boundary.

Oa1—8 to 16 inches; black (N 2.5/) sapric material; about 5 percent fiber, trace rubbed; weak medium prismatic structure; very friable; fibers are herbaceous; some mixing of mineral overwash material in the upper part; neutral; clear smooth boundary.

Oa2—16 to 46 inches; black (N 2.5/) sapric material; about 5 percent fiber, trace rubbed; massive; very friable; fibers are herbaceous; neutral; clear smooth boundary.

2Cg—46 to 60 inches; gray (5Y 5/1) fine sandy loam; massive; friable; slightly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the organic material: 16 to 51 inches

Depth to carbonates: More than 16 inches

Ap horizon or A (overwash) horizon:

Hue—10YR or N
Value—2 to 3
Chroma—0 to 2
Texture—silty clay loam
Content of rock fragments—none
Reaction—moderately acid to slightly alkaline

Surface tier:

Hue—10YR or N
Value—2 to 3
Chroma—0 to 2
Texture—dominantly sapric material
Content of rock fragments—none
Reaction—moderately acid to slightly alkaline

Subsurface and bottom tiers:

Hue—10YR or N
Value—2 to 4
Chroma—0 to 3
Texture—dominantly sapric material
Content of rock fragments—none
Reaction—moderately acid to slightly alkaline

2C or 2Cg horizon:

Hue—10YR, 5Y, 5GY, or N
Value—3 to 7
Chroma—0 to 4
Texture—fine sandy loam, sandy loam, or loam
Content of rock fragments—0 to 10 percent
Reaction—neutral to moderately alkaline

**3352A—Palms silty clay loam, 0 to 2 percent slopes,
frequently flooded, overwash**

Setting

Landform: Backswamps, flood plains

Map Unit Composition

Palms and similar soils: 95 percent

Dissimilar soils: 5 percent

Components of Minor Extent

Similar soils:

- Soils that have a thin layer of silty overwash overlying the organic material
- Soils that have less organic matter in the subsurface horizons
- Soils that have a slightly higher mean annual air temperature
- Poorly drained soils in landscape positions above those of the Palms soil

Dissimilar soils:

- Soils that are moderately well drained or somewhat poorly drained; on slight rises in landscape positions above those of the Palms soil

Properties and Qualities of the Palms Soil

Parent material: Silty alluvium over organic material over loamy outwash

Drainage class: Very poorly drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 16.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 4.5 to 10.0 percent

Shrink-swell potential: Very high

Depth and months of highest apparent seasonal high water table: At the surface all year

Ponding (average depth during the wettest periods or after heavy rainfall): 0.5 foot

Frequency and most likely period of ponding: Frequent, November through June

Frequency and most likely period of flooding: Frequent, November through June

Potential for frost action: High

Hazard of corrosion: Moderate for steel and concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low

Susceptibility to wind erosion: High

Interpretive Groups

Land capability classification: 5w

Prime farmland category: Not prime farmland

Hydric soil status: Hydric

Pella Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Endoaquolls

Typical Pedon

Pella silty clay loam, 0 to 2 percent slopes, at an elevation of 615 feet above mean sea level; Bureau County, Illinois; 320 feet east and 1,820 feet south of the northwest corner of sec. 30, T. 17 N., R. 6 E.; USGS Mineral, Illinois, topographic quadrangle; lat. 41 degrees 25 minutes 58.9 seconds N. and long. 89 degrees 51 minutes 20.9 seconds W.; UTM Zone 16T, Easting 0261390, Northing 4590765; NAD 83:

Ap—0 to 8 inches; black (N 2/) silty clay loam, black (10YR 2/1) dry; moderate medium granular structure; friable; common fine roots; neutral; abrupt smooth boundary.

A1—8 to 18 inches; black (N 2/) silty clay loam, black (10YR 2/1) dry; moderate medium subangular blocky structure; friable; few fine roots; neutral; clear smooth boundary.

A2—18 to 23 inches; black (N 2/) silty clay loam, black (10YR 2/1) dry; moderate fine subangular blocky structure; friable; few fine roots; few fine prominent brown (10YR 4/3) and few fine prominent strong brown (7.5YR 5/6) masses of oxidized iron in the matrix; few snail shells; neutral; clear smooth boundary.

Bg1—23 to 35 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure; friable; few fine roots; many medium prominent yellowish red (5YR 5/8) and few fine prominent strong brown (7.5YR 5/6) masses of oxidized iron in the matrix; few fine faint dark grayish brown (10YR 4/2) iron depletions in the matrix; prominent black (N 2.5/) krotovinas at a depth of 26 to 31 inches; few snail shells; neutral; clear smooth boundary.

- 2Bg2—35 to 46 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few fine roots; common medium prominent yellowish red (5YR 5/8) masses of oxidized iron and few fine faint dark grayish brown (10YR 4/2) iron depletions in the matrix; common snail shells; slightly alkaline; clear smooth boundary.
- 2BCg—46 to 50 inches; grayish brown (2.5Y 5/2), stratified silt loam and loam; weak medium prismatic structure; friable; common medium prominent yellowish red (5YR 5/8) masses of oxidized iron in the matrix; common snail shells; strongly effervescent; slightly alkaline; clear smooth boundary.
- 2Cg—50 to 60 inches; grayish brown (2.5Y 5/2), stratified silt loam and sandy loam; massive; friable; common medium prominent yellowish red (5YR 5/8) masses of oxidized iron in the matrix; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches

Thickness of the loess or silty material: 20 to 40 inches

Depth to carbonates: 16 to 40 inches

Depth to the base of the cambic horizon: 30 to 50 inches

Ap or A horizon:

Hue—10YR or N

Value—2 to 3

Chroma—0 to 2

Texture—silty clay loam or silt loam

Content of rock fragments—none

Reaction—slightly acid to slightly alkaline

Btg or Bg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 or 2

Texture—silty clay loam or silty clay

Content of rock fragments—none

Reaction—neutral or slightly alkaline

2Btg, 2BCg, or 2Bg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—5 or 6

Chroma—1 to 8

Texture—silty clay loam, clay loam, silt loam, or loam with strata of sandy loam, loamy sand, or sand

Content of rock fragments—0 to 10 percent

Reaction—slightly alkaline or moderately alkaline

2Cg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—5 or 6

Chroma—1 to 8

Texture—stratified silt loam and sandy loam with strata of loamy sand or sand

Content of rock fragments—0 to 15 percent

153A—Pella silty clay loam, 0 to 2 percent slopes

Setting

Landform: Depressions on outwash plains and ground moraines

Map Unit Composition

Pella and similar soils: 97 percent

Dissimilar soils: 3 percent

Components of Minor Extent

Similar soils:

- Poorly drained soils that have carbonates below a depth of 40 inches
- Poorly drained soils that have carbonates above a depth of 16 inches
- Poorly drained soils that contain less sand below a depth of 40 inches
- Somewhat poorly drained soils on slight rises
- Soils that are less alkaline in the upper part of the subsoil

Dissimilar soils:

- Moderately well drained and well drained soils on side slopes and rises; in landscape positions above those of the Pella soil

Properties and Qualities of the Pella Soil

Parent material: Loess over stratified loamy outwash

Drainage class: Poorly drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate or moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 9.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 4.5 to 7.0 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: At the surface,
January through May

Ponding (average depth during the wettest periods or after heavy rainfall): 0.2 foot

Frequency and most likely period of ponding: Frequent, November through June

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and low for concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2w

Prime farmland category: Prime farmland where drained

Hydric soil status: Hydric

Penfield Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Typic Argiudolls

Taxadjunct features: The Penfield soils in this survey area have a thinner dark surface layer than is defined as the range for the series. This difference, however, does not significantly affect the use, management, or interpretations of the soils. These soils are classified as fine-loamy, mixed, active, mesic Mollic Hapludalfs.

Typical Pedon

Penfield loam, 5 to 10 percent slopes, eroded, on a slope of 7 percent at an elevation of 724 feet above mean sea level; McLean County, Illinois; 145 feet south and 1,810 feet east of the northwest corner of sec. 9, T. 23 N., R. 1 E.; USGS Bloomington West, Illinois, topographic quadrangle; lat. 40 degrees 28 minutes 20.1 seconds N. and long. 89 degrees 06 minutes 32.3 seconds W.; UTM Zone 16T, Easting 0321219, Northing 4482311; NAD 83:

- Ap—0 to 7 inches; very dark brown (10YR 2/2) loam, dark grayish brown (10YR 4/2) dry; weak medium subangular blocky structure; friable; common fine roots; slightly alkaline; abrupt smooth boundary.
- BA—7 to 13 inches; brown (10YR 4/3) loam, grayish brown (10YR 5/2) dry; weak medium subangular blocky structure; friable; common fine roots; many distinct dark brown (10YR 3/3) organo-clay films on faces of peds; neutral; clear smooth boundary.
- Bt1—13 to 26 inches; yellowish brown (10YR 5/4) clay loam; moderate medium subangular blocky structure; friable; few fine roots; many distinct brown (10YR 4/3) clay films on faces of peds; neutral; clear smooth boundary.
- Bt2—26 to 37 inches; dark yellowish brown (10YR 4/4) clay loam; moderate coarse subangular blocky structure; friable; few fine roots; common distinct brown (10YR 4/3) clay films on faces of peds; few fine faint yellowish brown (10YR 5/4) masses of oxidized iron-manganese in the matrix; neutral; clear smooth boundary.
- BC—37 to 42 inches; dark yellowish brown (10YR 4/4) sandy loam; weak coarse subangular blocky structure; very friable; few distinct brown (10YR 4/3) clay films on faces of peds; few fine faint yellowish brown (10YR 5/4) masses of oxidized iron-manganese in the matrix; neutral; clear smooth boundary.
- C—42 to 60 inches; dark yellowish brown (10YR 4/4), stratified sandy loam to coarse sand; single grain; loose; common fine distinct dark yellowish brown (10YR 4/6) and faint yellowish brown (10YR 5/4) masses of oxidized iron-manganese in the matrix; 1 percent gravel; neutral.

Range in Characteristics

Thickness of the mollic layer: 7 to 9 inches

Thickness of the loess: 0 to 22 inches

Depth to carbonates: More than 40 inches

Depth to the base of the argillic horizon: More than 24 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 to 3

Texture of the fine-earth fraction—loam or silt loam

Content of rock fragments—none

Reaction—moderately acid to slightly alkaline

Bt or Btg horizon:

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—3 to 6

Texture of the fine-earth fraction—loam, clay loam, silty clay loam, or sandy clay loam

Content of rock fragments—0 to 5 percent by volume

Reaction—strongly acid to neutral

BC, BCt, or C horizon:

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—3 to 6

Texture of the fine-earth fraction—sandy loam, fine sandy loam, loam, or coarse sand; stratified in some pedons

Content of rock fragments—0 to 15 percent by volume

Reaction—moderately acid to slightly alkaline

687C2—Penfield loam, 5 to 10 percent slopes, eroded

Setting

Landform: Outwash terraces

Position on the landform: Shoulders, backslopes

Map Unit Composition

Penfield and similar soils: 93 percent

Dissimilar soils: 7 percent

Components of Minor Extent

Similar soils:

- Soils that do not have a seasonal high water table within a depth of 6 feet
- Soils that have less sand in the subsoil

Dissimilar soils:

- Soils near streams that are subject to flooding
- The poorly drained Sawmill soils on flood plains
- The poorly drained Drummer soils in swales

Properties and Qualities of the Penfield Soil

Parent material: Loamy outwash

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 6.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.5 to 3.5 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: 3.5 feet, February through April

Ponding: None

Flooding: None

Accelerated erosion: The surface layer has been thinned by erosion.

Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3e

Prime farmland category: Not prime farmland

Hydric soil status: Not hydric

Peotone Series

Taxonomic classification: Fine, smectitic, mesic Cumulic Vertic Endoaquolls

Typical Pedon

Peotone silty clay loam, 0 to 2 percent slopes, at an elevation of 692 feet above mean sea level; Macon County, Illinois; 310 feet north and 2,435 feet west of the center of sec. 13, T. 14 N., R. 3 E.; USGS Dalton City, Illinois, topographic quadrangle; lat. 39 degrees 39 minutes 40.7 seconds N. and long. 88 degrees 49 minutes 43.6 seconds W.; UTM Zone 16T, Easting 0343123, Northing 4391766; NAD 83:

- Ap—0 to 6 inches; black (5Y 2.5/1) silty clay loam, dark gray (10YR 4/1) dry; moderate very fine subangular blocky structure; firm; neutral; clear smooth boundary.
- A—6 to 14 inches; black (5Y 2.5/1) silty clay loam, dark gray (10YR 4/1) dry; moderate very fine subangular blocky structure; moderate medium angular blocky structure in the upper 2 inches; firm; neutral; clear smooth boundary.
- AB—14 to 22 inches; very dark gray (5Y 3/1) silty clay loam, gray (5Y 5/1) dry; moderate fine angular blocky structure; firm; many faint black (5Y 2.5/1) organic coatings on faces of peds; neutral; clear smooth boundary.
- BA—22 to 28 inches; very dark gray (5Y 3/1) silty clay loam, gray (5Y 5/1) dry; moderate fine prismatic structure; firm; few medium prominent spherical black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; neutral; clear smooth boundary.
- Bg1—28 to 36 inches; dark gray (5Y 4/1) silty clay loam; weak medium prismatic structure; firm; few fine faint gray (5Y 5/1) iron depletions in the matrix; few medium prominent spherical black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; neutral; clear smooth boundary.
- Bg2—36 to 44 inches; gray (5Y 5/1) silty clay loam; weak medium prismatic structure; firm; common fine prominent light olive brown (2.5Y 5/4) masses of oxidized iron-manganese and yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine and medium prominent spherical black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; neutral; gradual smooth boundary.
- BCg—44 to 60 inches; gray (5Y 5/1) silty clay loam; weak medium prismatic structure; firm; common medium prominent strong brown (7.5YR 5/6) masses of oxidized iron and distinct light yellowish brown (2.5Y 6/4) masses of oxidized iron-manganese in the matrix; krotovinas (11 percent); violently effervescent; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 24 to 36 inches

Thickness of the loess or colluvial sediment: More than 40 inches

Depth to carbonates: More than 30 inches

Depth to the base of the cambic horizon: More than 38 inches

Ap or A horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—2 to 3

Chroma—0 or 1

Texture—silty clay loam

Content of rock fragments—typically none

Reaction—moderately acid to slightly alkaline

AB or BA horizon:

Hue—10YR, 2.5Y, 5Y, or N
Value—2 to 3
Chroma—0 or 1
Texture—silty clay loam or silty clay
Content of rock fragments—typically none
Reaction—moderately acid to slightly alkaline

Bg horizon:

Hue—10YR, 2.5Y, 5Y, or N
Value—2 to 6
Chroma—0 to 2
Texture—silty clay loam or silty clay
Content of rock fragments—0 to 1 percent
Reaction—slightly acid to slightly alkaline

BCg or Cg horizon (where present):

Hue—10YR, 2.5Y, 5Y, or N
Value—4 to 6
Chroma—0 to 2
Texture—silt loam or silty clay loam
Content of rock fragments—0 to 1 percent
Reaction—neutral to moderately alkaline

330A—Peotone silty clay loam, 0 to 2 percent slopes

Setting

Landform: Closed depressions on ground moraines and outwash plains

Map Unit Composition

Peotone and similar soils: 93 percent

Dissimilar soils: 7 percent

Components of Minor Extent

Similar soils:

- Soils that have a dark surface layer less than 24 inches thick
- Soils that have carbonates above a depth of 40 inches
- Soils that have less clay in the subsoil
- Soils that are poorly drained
- Soils that have a thick, light-colored subsurface layer
- Soils that have more sand in the surface layer or subsoil
- Soils that have a slightly higher mean annual air temperature

Dissimilar soils:

- The somewhat poorly drained Ipava and Flanagan soils on side slopes and rises; in landscape positions above those of the Peotone soil

Properties and Qualities of the Peotone Soil

Parent material: Loess and/or colluvium

Drainage class: Very poorly drained

Slowest permeability within a depth of 40 inches: Moderately slow

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 9.3 inches to a depth of 60 inches

Content of organic matter in the surface layer: 4.5 to 7.0 percent

Shrink-swell potential: High

Depth and months of highest apparent seasonal high water table: At the surface,
January through June

Ponding (average depth during the wettest periods or after heavy rainfall): 0.5 foot

Frequency and most likely period of ponding: Frequent, November through June

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and low for concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderate

Interpretive Groups

Land capability classification: 3w

Prime farmland category: Prime farmland where drained

Hydric soil status: Hydric

865—Pits, gravel

This map unit consists of nearly level and gently sloping areas from which gravel has been extracted. The pits have nearly vertical sidewalls. Some pits are active, and others have been abandoned. Some contain water. In some areas, Orthents are included in mapping.

Interpretive Groups

Land capability classification: 8

Prime farmland category: Not prime farmland

Hydric soil status: Not applicable

7865—Pits, gravel, rarely flooded

This map unit consists of nearly level and gently sloping areas from which gravel has been extracted. The pits have nearly vertical sidewalls. Some pits are active, and others have been abandoned. Some contain water. In some areas, Orthents are included in mapping.

Interpretive Groups

Land capability classification: 8

Prime farmland category: Not prime farmland

Hydric soil status: Not applicable

Plano Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Argiudolls

Taxadjunct features: The Plano soil in map unit 199C2 has a thinner dark surface layer than is defined as the range for the series. This difference, however, does not significantly affect the use, management, or interpretations of the soil. This soil is classified as a fine-silty, mixed, superactive, mesic Mollic Hapludalf.

Typical Pedon

Plano silt loam, 0 to 2 percent slopes, at an elevation of 715 feet above mean sea level; Stark County, Illinois; 1,200 feet south and 1,920 feet east of the northwest corner of sec. 13, T. 12 N., R. 7 E.; USGS Castleton, Illinois, topographic quadrangle;

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lat. 41 degrees 01 minute 45.1 seconds N. and long. 89 degrees 39 minutes 00.4 second W.; UTM Zone 16T, Easting 0277210, Northing 4545382; NAD 83:

- Ap—0 to 9 inches; very dark brown (10YR 2/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; few very fine roots; slightly acid; clear smooth boundary.
- A—9 to 14 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate fine granular structure; friable; many very fine roots; slightly acid; clear smooth boundary.
- Bt1—14 to 19 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; friable; common very fine roots; many distinct dark brown (10YR 3/3) organo-clay films on faces of peds; slightly acid; clear smooth boundary.
- Bt2—19 to 31 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; common very fine roots; many distinct brown (10YR 4/3) clay films on faces of peds; slightly acid; clear smooth boundary.
- Bt3—31 to 43 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; few very fine roots; many distinct brown (10YR 4/3) clay films on faces of peds; common distinct very pale brown (10YR 7/3) (dry) silt coatings on faces of peds; few fine faint yellowish brown (10YR 5/4) masses of oxidized iron-manganese in the matrix; slightly acid; clear smooth boundary.
- Bt4—43 to 49 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium prismatic structure; friable; few very fine roots; many distinct brown (10YR 4/3) clay films on faces of peds; few distinct very pale brown (10YR 7/3) (dry) silt coatings on faces of peds; slightly acid; clear smooth boundary.
- 2Bt5—49 to 53 inches; dark yellowish brown (10YR 4/4) clay loam; weak medium prismatic structure; friable; few fine roots; many distinct brown (10YR 4/3) clay films on faces of peds; neutral; clear smooth boundary.
- 2BCt—53 to 60 inches; brown (7.5YR 4/4) sandy loam; weak medium subangular blocky structure; very friable; many distinct dark yellowish brown (10YR 3/4) clay films bridging sand grains; 5 percent gravel; neutral; gradual smooth boundary.
- 2C—60 to 72 inches; stratified yellowish brown (10YR 5/6) and brown (7.5YR 4/4) sandy loam, loam, and loamy sand; massive; friable; 12 percent gravel; neutral.

Range in Characteristics

Thickness of the mollic epipedon or mollic layer: 7 to 20 inches

Thickness of the loess: 40 to 60 inches

Depth to carbonates: More than 60 inches

Depth to the base of the argillic horizon: 44 to 70 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 to 3

Texture—silt loam

Content of rock fragments—none

Reaction—slightly acid or neutral

AB or BA horizon (where present):

Hue—10YR

Value—3 or 4

Chroma—2 to 4

Texture—silt loam or silty clay loam

Content of rock fragments—none
Reaction—moderately acid to neutral

Bt horizon:

Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 4
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

2Bt or 2BC horizon:

Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 6
Texture—clay loam, sandy clay loam, loam, sandy loam, loamy sand, or silt loam
Content of rock fragments—2 to 15 percent
Reaction—moderately acid to slightly alkaline

2C horizon:

Hue—7.5YR, 10YR, or 2.5Y
Value—3 to 5
Chroma—3 to 6
Texture—sandy loam, loam, sand, loamy sand, or silt loam; stratified in some pedons; stratified sand to loamy sand in the sandy substratum phase
Content of rock fragments—3 to 15 percent
Reaction—moderately acid to moderately alkaline

199A—Plano silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains, stream terraces

Position on the landform: Summits

Map Unit Composition

Plano and similar soils: 94 percent

Dissimilar soils: 6 percent

Components of Minor Extent

Similar soils:

- Soils that have more sand in the substratum
- Soils that are eroded
- Soils that have a water table at a depth of 3.5 to 6.0 feet
- Soils that have less sand above a depth of 60 inches

Dissimilar soils:

- The somewhat poorly drained Elburn soils in swales and on toeslopes; in landscape positions below those of the Plano soil
- The poorly drained Drummer and Sable soils in swales

Properties and Qualities of the Plano Soil

Parent material: Loess over stratified loamy outwash

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3 to 4 percent
Shrink-swell potential: Moderate
Ponding: None
Flooding: None
Potential for frost action: High
Hazard of corrosion: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 1
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

199B—Plano silt loam, 2 to 5 percent slopes

Setting

Landform: Outwash plains, stream terraces
Position on the landform: Summits, shoulders

Map Unit Composition

Plano and similar soils: 91 percent
Dissimilar soils: 9 percent

Components of Minor Extent

Similar soils:

- Soils that are moderately eroded
- Soils that have a water table at a depth of 3.5 to 6.0 feet
- Soils that have less sand above a depth of 60 inches

Dissimilar soils:

- The somewhat poorly drained Elburn soils in swales and on toeslopes; in landscape positions below those of the Plano soil
- The poorly drained Drummer and Sable soils in swales
- Soils that are severely eroded

Properties and Qualities of the Plano Soil

Parent material: Loess over stratified loamy outwash
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3 to 4 percent
Shrink-swell potential: Moderate
Ponding: None
Flooding: None
Potential for frost action: High

Hazard of corrosion: Moderate for steel and concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

199C2—Plano silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Outwash plains, stream terraces

Position on the landform: Shoulders, backslopes

Map Unit Composition

Plano and similar soils: 91 percent

Dissimilar soils: 9 percent

Components of Minor Extent

Similar soils:

- Soils that are severely eroded
- Soils that have a water table at a depth of 3.5 to 6.0 feet
- Soils that have less sand above a depth of 60 inches

Dissimilar soils:

- The somewhat poorly drained Elburn soils in swales and on toeslopes; in landscape positions below those of the Plano soil
- The poorly drained Drummer and Sable soils in swales

Properties and Qualities of the Plano Soil

Parent material: Loess over stratified loamy outwash

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 10.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2 to 4 percent

Shrink-swell potential: Moderate

Ponding: None

Flooding: None

Accelerated erosion: The surface layer has been thinned by erosion.

Potential for frost action: High

Hazard of corrosion: Moderate for steel and concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3e

Prime farmland category: Not prime farmland

Hydric soil status: Not hydric

7199B—Plano silt loam, 2 to 5 percent slopes, rarely flooded

Setting

Landform: Stream terraces

Position on the landform: Shoulders

Map Unit Composition

Plano and similar soils: 90 percent

Dissimilar soils: 10 percent

Components of Minor Extent

Similar soils:

- Soils that have a grayer subsoil
- Soils that have more sand in the substratum
- Soils on slopes that are not subject to flooding

Dissimilar soils:

- The somewhat poorly drained Elburn soils in swales and on low rises; in landscape positions below those of the Plano soil
- The poorly drained Brooklyn soils in swales
- The frequently flooded Sawmill and Lawson soils on flood plains; in landscape positions below those of the Plano soil

Properties and Qualities of the Plano Soil

Parent material: Loess over loamy and sandy alluvium

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 10.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 3 to 4 percent

Shrink-swell potential: Moderate

Ponding: None

Frequency and most likely period of flooding: Rare, November through June

Potential for frost action: High

Hazard of corrosion: Moderate for steel and concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Proctor Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Argiudolls

Taxadjunct features: The Proctor soil in map unit 148C2 has a thinner dark surface layer than is defined as the range for the series. This difference, however, does not significantly affect the use, management, or interpretations of the soil. This soil is classified as a fine-silty, mixed, superactive, mesic Mollic Hapludalf.

Typical Pedon

Proctor silt loam, 2 to 5 percent slopes, on a slope of 4 percent at an elevation of 682 feet above mean sea level; Edgar County, Illinois; about 1 mile southwest of Redmon; 1,500 feet west and 100 feet south of the northeast corner of sec. 32, T. 14 N., R. 13 W.; USGS Brocton, Illinois, topographic quadrangle; lat. 39 degrees 37 minutes 43.1 seconds N. and long. 87 degrees 52 minutes 39 seconds W.; UTM Zone 16S, Easting 0424692, Northing 4386910; NAD 83:

- Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine and medium granular structure; friable; common very fine roots; neutral; clear smooth boundary.
- A—9 to 13 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate very fine and fine subangular blocky structure parting to moderate very fine granular; friable; common very fine roots; moderately acid; clear smooth boundary.
- Bt1—13 to 17 inches; dark yellowish brown (10YR 4/4) silt loam; moderate very fine and fine subangular blocky structure; friable; common very fine roots; many distinct dark brown (10YR 3/3) organo-clay films on faces of peds; moderately acid; clear smooth boundary.
- Bt2—17 to 25 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; few very fine roots; many faint brown (10YR 4/3) clay films on faces of peds; moderately acid; clear smooth boundary.
- 2Bt3—25 to 33 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium prismatic structure parting to moderate fine and medium subangular blocky; firm; few very fine roots; common faint brown (10YR 4/3) clay films on faces of peds; about 1 percent fine gravel; moderately acid; clear smooth boundary.
- 2Bt4—33 to 45 inches; brown (7.5YR 4/4) sandy loam; moderate medium and coarse prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; few faint brown (10YR 4/3) clay films on faces of peds and few distinct very dark grayish brown (10YR 3/2) organo-clay films in root channels and pores; about 1 percent fine gravel; moderately acid; clear smooth boundary.
- 2BC—45 to 52 inches; brown (7.5YR 4/4) sandy loam stratified with thin lenses of loamy sand; moderate coarse subangular blocky structure; friable; few very fine roots; about 1 percent fine gravel; slightly acid; gradual smooth boundary.
- 2C—52 to 60 inches; mixed brown (7.5YR 4/4) and yellowish brown (10YR 5/4) sandy loam stratified with thin lenses of loamy sand; massive; very friable; about 2 percent fine gravel; slightly acid.

Range in Characteristics

Thickness of the mollic epipedon or mollic layer: 7 to 20 inches

Thickness of the loess: 20 to 40 inches

Depth to carbonates: More than 60 inches

Depth to the base of the argillic horizon: 40 to 65 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 to 3

Texture—silt loam

Content of rock fragments—none

Reaction—moderately acid to neutral

Bt horizon:

Hue—7.5YR or 10YR
Value—3 to 6
Chroma—3 to 6
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—moderately acid to neutral

2Bt horizon:

Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—sandy loam, loam, silty clay loam, clay loam, or silt loam
Content of rock fragments—0 to 10 percent
Reaction—moderately acid to neutral

2BC or 2C horizon:

Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—stratified sandy loam, loam, or silt loam
Content of rock fragments—0 to 15 percent
Reaction—slightly acid to slightly alkaline

148B—Proctor silt loam, 2 to 5 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Summits, shoulders

Map Unit Composition

Proctor and similar soils: 95 percent

Dissimilar soils: 5 percent

Components of Minor Extent

Similar soils:

- Soils that are eroded
- Soils that have stratified lacustrine material in the substratum

Dissimilar soils:

- The poorly drained Sawmill soils on flood plains
- The poorly drained Drummer soils in swales
- The somewhat poorly drained Elburn soils in swales

Properties and Qualities of the Proctor Soil

Parent material: Loess over stratified loamy outwash

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate or moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 9.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2 to 4 percent

Shrink-swell potential: Moderate

Ponding: None

Flooding: None
Potential for frost action: High
Hazard of corrosion: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

148C2—Proctor silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Outwash plains, stream terraces
Position on the landform: Backslopes

Map Unit Composition

Proctor and similar soils: 87 percent
Dissimilar soils: 13 percent

Components of Minor Extent

Similar soils:

- Soils that are severely eroded
- Soils that have stratified lacustrine material in the substratum

Dissimilar soils:

- The poorly drained Drummer soils in swales
- The poorly drained Sawmill soils on flood plains
- The somewhat poorly drained Elburn soils in swales

Properties and Qualities of the Proctor Soil

Parent material: Loess over loamy outwash
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.5 to 3.5 percent
Shrink-swell potential: Moderate
Ponding: None
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3e
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

Raub Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Argiudolls

Typical Pedon

Raub silt loam, 0 to 2 percent slopes, at an elevation of 680 feet above mean sea level; Champaign County, Illinois; 2,550 feet north and 1,690 feet east of the southwest corner of sec. 19, T. 20 N., R. 14 W.; USGS Royal, Illinois, topographic quadrangle; lat. 40 degrees 10 minutes 46.7 seconds N. and long. 87 degrees 59 minutes 18.2 seconds W.; UTM Zone 16T, Easting 0415853, Northing 4448165; NAD 83:

- Ap—0 to 10 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate fine and very fine subangular blocky structure; friable; slightly acid; clear smooth boundary.
- A—10 to 18 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure; friable; slightly acid; clear smooth boundary.
- Bt1—18 to 22 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; friable; few distinct very dark gray (10YR 3/1) organo-clay films lining pores; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine distinct and prominent yellowish brown (10YR 5/6 and 5/8) masses of oxidized iron in the matrix; moderately acid; abrupt smooth boundary.
- Bt2—22 to 32 inches; yellowish brown (10YR 5/4) silty clay loam; strong fine and medium angular blocky structure; firm; many distinct brown (10YR 4/3) clay films on faces of peds; few fine distinct dark grayish brown (10YR 4/2) iron depletions, few fine faint brown (10YR 5/3) masses of oxidized iron-manganese, and common fine distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine prominent spherical black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; slightly acid; clear smooth boundary.
- 2Bt3—32 to 40 inches; yellowish brown (10YR 5/4) clay loam; weak medium subangular blocky structure; firm; common distinct black (10YR 2/1) organo-clay films lining root channels; few coarse prominent light olive gray (5Y 6/2) iron depletions and many fine distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; many medium prominent irregular black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; 1 percent fine gravel; neutral; clear smooth boundary.
- 2BC—40 to 50 inches; yellowish brown (10YR 5/4) clay loam; weak medium and coarse subangular blocky structure; firm; many medium distinct gray (10YR 5/1) iron depletions and many medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; common fine prominent irregular black (7.5YR 2.5/1) very weakly cemented iron-manganese nodules throughout; 1 percent fine gravel; slightly effervescent; slightly alkaline; clear smooth boundary.
- 2C—50 to 60 inches; yellowish brown (10YR 5/4) and gray (5Y 6/1) loam; massive; firm; common fine distinct and prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; 5 percent fine gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches

Thickness of the loess: 22 to 40 inches

Depth to carbonates: 40 to 70 inches

Depth to the base of the argillic horizon: 40 to 70 inches

Ap or A horizon:

Hue—10YR
Value—2 to 3
Chroma—1 or 2
Texture—silt loam
Content of rock fragments—0 to 1 percent
Reaction—moderately acid to neutral

Bt horizon:

Hue—10YR or 2.5Y
Value—3 to 5
Chroma—3 to 6
Texture—silty clay loam or silt loam
Content of rock fragments—0 to 1 percent
Reaction—strongly acid to slightly acid

2Bt horizon:

Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—clay loam, silty clay loam, or loam
Content of rock fragments—1 to 10 percent
Reaction—slightly acid or neutral

2BC horizon (where present):

Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—clay loam or loam
Content of rock fragments—1 to 10 percent
Reaction—neutral or slightly alkaline

2C horizon:

Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—clay loam or loam
Content of rock fragments—3 to 10 percent
Reaction—slightly alkaline or moderately alkaline

481A—Raub silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines

Position on the landform: Footslopes, summits

Map Unit Composition

Raub and similar soils: 94 percent

Dissimilar soils: 6 percent

Components of Minor Extent

Similar soils:

- Soils that have a thin dark surface layer
- Soils that are eroded
- Soils that have more clay in the subsoil

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- Soils that have slopes of more than 2 percent
- Soils that have yellower hues in the substratum
- Soils that do not have a dense substratum

Dissimilar soils:

- The poorly drained Drummer soils in swales
- Soils near streams that are subject to flooding

Properties and Qualities of the Raub Soil

Parent material: Loess over till

Drainage class: Somewhat poorly drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 9.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 3.5 to 5.0 percent

Shrink-swell potential: Moderate

Depth and months of highest perched seasonal high water table: 1 foot, January through May

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 1

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Ross Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Cumulic Hapludolls

Typical Pedon

Ross silt loam, 0 to 2 percent slopes, frequently flooded, at an elevation of 590 feet above mean sea level; Tazewell County, Illinois; 1,490 feet west and 232 feet north of the southeast corner of sec. 28, T. 23 N., R. 3 W.; USGS Hopedale, Illinois, topographic quadrangle; lat. 40 degrees 24 minutes 38.6 seconds N. and long. 89 degrees 26 minutes 32 seconds W.; UTM Zone 16T, Easting 0292777, Northing 4476209; NAD 83:

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam, dark grayish brown (10YR 4/2) dry; weak fine granular structure; friable; common very fine roots; neutral; clear smooth boundary.

A—8 to 13 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure parting to weak fine granular; friable; common very fine and fine roots; common faint very dark gray (10YR 3/1) organic coatings on faces of pedis; neutral; clear smooth boundary.

Bw1—13 to 27 inches; very dark grayish brown (10YR 3/2) loam, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure; friable; few very fine roots; few faint very dark gray (10YR 3/1) organic coatings on faces of pedis; neutral; gradual smooth boundary.

- Bw2—27 to 34 inches; dark brown (10YR 3/3) loam, brown (10YR 4/3) dry; weak fine and medium subangular blocky structure; friable; few very fine and coarse roots; common distinct very dark gray (10YR 3/1) and few faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; neutral; gradual smooth boundary.
- Bw3—34 to 43 inches; brown (10YR 4/3) loam; weak medium subangular blocky structure; very friable; few very fine roots; many distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; neutral; gradual smooth boundary.
- C1—43 to 54 inches; brown (10YR 4/3) sandy loam; massive; very friable; few very fine and fine roots; neutral; gradual smooth boundary.
- C2—54 to 60 inches; brown (10YR 4/3) sandy loam; massive; very friable; few fine faint grayish brown (10YR 5/2) iron depletions in the matrix; 5 percent gravel; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 24 to 40 inches

Depth to carbonates: 24 to 45 inches

Depth to the base of the cambic horizon: 24 to 45 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 to 3

Texture—silt loam

Content of rock fragments—0 to 6 percent

Reaction—slightly acid or neutral

Bw horizon:

Hue—10YR

Value—2 to 5

Chroma—1 to 4

Texture—loam or silt loam

Content of rock fragments—0 to 10 percent

Reaction—slightly acid to slightly alkaline

C horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—1 to 4

Texture—stratified sandy loam to silt loam

Content of rock fragments—0 to 15 percent

Reaction—slightly acid to moderately alkaline

3073A—Ross silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood-plain steps, flood plains

Map Unit Composition

Ross and similar soils: 91 percent

Dissimilar soils: 9 percent

Components of Minor Extent

Similar soils:

- Soils that have less sand in the subsoil

- Soils that have less clay in the subsoil
- Soils that do not have carbonates between depths of 24 and 45 inches

Dissimilar soils:

- The somewhat poorly drained Tice and Lawson soils
- Soils that are not subject to flooding
- The poorly drained Sawmill soils in swales

Properties and Qualities of the Ross Soil

Parent material: Loamy alluvium

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate or moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 8.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2 to 4 percent

Shrink-swell potential: Low

Depth and months of highest apparent seasonal high water table: 4 feet, February through April

Ponding: None

Frequency and most likely period of flooding: Frequent, November through June

Potential for frost action: Moderate

Hazard of corrosion: Low for steel and concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3w

Prime farmland category: Prime farmland where protected from flooding or not frequently flooded during the growing season

Hydric soil status: Not hydric

Rozetta Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon

Rozetta silt loam, 2 to 5 percent slopes, on a slope of about 3.5 percent at an elevation of 605 feet above mean sea level; Fulton County, Illinois; 2,710 feet west and 485 feet north of the southeast corner of sec. 15, T. 4 N., R. 2 E.; USGS Ipava, Illinois, topographic quadrangle; lat. 40 degrees 19 minutes 15.1 seconds N. and long. 90 degrees 15 minutes 59 seconds W.; UTM Zone 15T, Easting 0732258, Northing 4466957; NAD 83:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak very fine granular structure; friable; common very fine and few fine roots; neutral; clear smooth boundary.

E—7 to 11 inches; brown (10YR 4/3) silt loam; weak medium platy structure parting to weak very fine subangular blocky; friable; common very fine roots; few distinct light gray (10YR 7/2) (dry) silt coatings on faces of peds; neutral; clear smooth boundary.

Bt1—11 to 19 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; friable; common very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films and few distinct light gray (10YR 7/2)

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(dry) silt coatings on faces of peds; few fine distinct black (10YR 2/1) manganese concretions with sharp boundaries in ped interiors; moderately acid; clear smooth boundary.

Bt2—19 to 29 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; common very fine roots; few distinct dark yellowish brown (10YR 4/4) clay films and few distinct light gray (10YR 7/2) (dry) silt coatings on faces of peds; few fine distinct dark yellowish brown (10YR 4/6) masses of oxidized iron-manganese with diffuse boundaries and few fine distinct black (10YR 2/1) manganese concretions with sharp boundaries in ped interiors; moderately acid; gradual smooth boundary.

Bt3—29 to 39 inches; 80 percent yellowish brown (10YR 5/4), 15 percent yellowish brown (10YR 5/6), and 5 percent pale brown (10YR 6/3) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine distinct dark yellowish brown (10YR 4/6) masses of oxidized iron-manganese with diffuse boundaries and common fine distinct black (10YR 2/1) manganese concretions with sharp boundaries in ped interiors; strongly acid; gradual smooth boundary.

Bt4—39 to 45 inches; 60 percent yellowish brown (10YR 5/4), 20 percent yellowish brown (10YR 5/6), and 20 percent pale brown (10YR 6/3) silty clay loam; weak coarse prismatic structure parting to moderate coarse subangular blocky; friable; few very fine roots; few distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine distinct dark yellowish brown (10YR 4/6) masses of oxidized iron-manganese with diffuse boundaries and few fine distinct and prominent black (10YR 2/1) manganese concretions with sharp boundaries in ped interiors; moderately acid; gradual smooth boundary.

BC—45 to 55 inches; 70 percent yellowish brown (10YR 5/4) and 30 percent yellowish brown (10YR 5/6) silty clay loam; weak coarse prismatic structure; friable; few very fine roots; few distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct dark yellowish brown (10YR 4/6) masses of oxidized iron-manganese with diffuse boundaries and few fine distinct and prominent black (10YR 2/1) manganese concretions with sharp boundaries in ped interiors; common fine distinct and prominent light brownish gray (10YR 6/2) iron depletions along root channels and pores; moderately acid; gradual smooth boundary.

C—55 to 60 inches; yellowish brown (10YR 5/6) silt loam; massive; friable; few very fine roots; common fine distinct dark yellowish brown (10YR 4/6) masses of oxidized iron-manganese with diffuse boundaries and few fine prominent black (10YR 2/1) manganese concretions with sharp boundaries in ped interiors; few fine prominent light brownish gray (10YR 6/2) iron depletions along pores; slightly acid.

Range in Characteristics

Thickness of the loess: More than 60 inches

Depth to carbonates: More than 60 inches

Depth to the base of the argillic horizon: 42 to 72 inches

Ap or A horizon:

Hue—10YR

Value—3 to 5

Chroma—1 to 3

Texture—silt loam

Content of rock fragments—none

Reaction—very strongly acid to neutral

E horizon (where present):

Hue—10YR
Value—4 to 6
Chroma—2 or 3
Texture—silt loam
Content of rock fragments—none
Reaction—very strongly acid to moderately acid

Bt, BCt, or BC horizon:

Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam
Content of rock fragments—none
Reaction—very strongly acid to neutral

C or Cg horizon:

Hue—10YR
Value—4 to 6
Chroma—2 to 6
Texture—silt loam or silty clay loam
Content of rock fragments—none
Reaction—slightly acid to moderately alkaline

279B—Rozetta silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines, till plains

Position on the landform: Shoulders, summits

Map Unit Composition

Rozetta and similar soils: 91 percent

Dissimilar soils: 9 percent

Components of Minor Extent

Similar soils:

- Soils that are moderately well drained
- Soils that are eroded
- Soils that have slopes of less than 2 percent
- Soils that have a thin dark surface layer
- Soils that have more sand in the substratum
- Soils that are more acid in the substratum
- Soils that are less acid in the surface and subsurface horizons

Dissimilar soils:

- Soils that have a thick dark surface layer
- Somewhat poorly drained or poorly drained soils in swales
- The poorly drained Sable soils in swales

Properties and Qualities of the Rozetta Soil

Parent material: Loess

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches

Soil Survey of Macon County, Illinois

Available water capacity: About 11.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1 to 3 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: 4 feet, February through April

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: Moderate for steel and high for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Russell Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon

Russell silt loam, 5 to 10 percent slopes, eroded, on a slope of 8 percent at an elevation of 738 feet above mean sea level; Edgar County, Illinois; 115 feet north and 235 feet west of the center of sec. 18, T. 12 N., R. 13 W.; USGS Westfield East, Illinois, topographic quadrangle; lat. 39 degrees 29 minutes 23.5 seconds N. and long. 87 degrees 53 minutes 48.4 seconds W.; UTM Zone 16T, Easting 0422885, Northing 4371522; NAD 83:

- Ap—0 to 7 inches; brown (10YR 4/3) silt loam, light brownish gray (10YR 6/2) dry; mixed with few pockets of yellowish brown (10YR 5/4) subsoil material in the lower part; moderate very fine and fine granular structure; friable; many very fine roots; few fine distinct spherical black (10YR 2/1) very weakly cemented iron-manganese concretions throughout; slightly acid; abrupt smooth boundary.
- Bt1—7 to 13 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; friable; common very fine roots; common distinct brown (10YR 5/3) clay films on faces of peds; few fine distinct spherical black (10YR 2/1) very weakly cemented iron-manganese concretions throughout; very strongly acid; clear smooth boundary.
- Bt2—13 to 21 inches; yellowish brown (10YR 5/6) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine prominent spherical black (10YR 2/1) very weakly cemented iron-manganese concretions throughout; very strongly acid; clear smooth boundary.
- Bt3—21 to 27 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; common distinct light yellowish brown (10YR 6/4) silt coatings on faces of peds; common distinct brown (7.5YR 4/4) clay films on faces of peds; few fine distinct spherical black (10YR 2/1) very weakly cemented iron-manganese concretions throughout; very strongly acid; clear smooth boundary.
- 2Bt4—27 to 36 inches; yellowish brown (10YR 5/4) clay loam; moderate medium and coarse subangular blocky structure; firm; few very fine roots; common distinct

light yellowish brown (10YR 6/4) silt coatings on faces of peds; few distinct brown (7.5YR 4/4) clay films on faces of peds; few fine distinct spherical black (10YR 2/1) very weakly cemented iron-manganese concretions throughout; 2 percent fine gravel; neutral; clear smooth boundary.

2Bt5—36 to 56 inches; strong brown (7.5YR 5/6) clay loam; weak coarse subangular blocky structure; firm; few very fine roots; few distinct brown (10YR 4/3) clay films on faces of peds; few distinct dark brown (10YR 3/3) organo-clay films lining root channels and pores; few prominent black (10YR 2/1) iron-manganese coatings on faces of peds; few fine and medium prominent spherical black (10YR 2/1) very weakly cemented iron-manganese concretions throughout; 5 percent fine gravel; neutral; gradual smooth boundary.

2Cd—56 to 72 inches; yellowish brown (10YR 5/4) loam; massive; firm; few fine distinct spherical black (10YR 2/1) very weakly cemented iron-manganese concretions throughout; 5 percent fine gravel; very slightly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess: 20 to 40 inches

Depth to carbonates: 40 to 60 inches

Depth to the base of the argillic horizon: 40 to 60 inches

Ap horizon:

Hue—10YR

Value—4 or 5

Chroma—2 or 3

Texture—silt loam or silty clay loam

Content of rock fragments—none

Reaction—strongly acid to neutral

Bt horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 or 5

Chroma—3 to 6

Texture—silty clay loam or silt loam

Content of rock fragments—none

Reaction—very strongly acid to neutral

2Bt horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 or 5

Chroma—3 to 6

Texture—clay loam, loam, or silty clay loam

Content of rock fragments—1 to 10 percent

Reaction—moderately acid to neutral

2Cd horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 or 5

Chroma—3 to 6

Texture—loam or clay loam

Content of rock fragments—1 to 14 percent

Reaction—neutral to moderately alkaline

322C2—Russell silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines, end moraines

Position on the landform: Backslopes, shoulders

Map Unit Composition

Russell and similar soils: 92 percent

Dissimilar soils: 8 percent

Components of Minor Extent

Similar soils:

- Soils that have a thick dark surface layer
- Soils that are severely eroded
- Soils that are slightly eroded
- Soils that have carbonates above a depth of 40 inches

Dissimilar soils:

- Soils near streams that are subject to flooding
- Somewhat poorly drained soils in swales

Properties and Qualities of the Russell Soil

Parent material: Loess over till

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: 40 to 60 inches to dense material

Available water capacity: About 9.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Moderate

Ponding: None

Flooding: None

Accelerated erosion: The surface layer has been thinned by erosion.

Potential for frost action: High

Hazard of corrosion: Moderate for steel and concrete

Surface runoff class: Medium

Susceptibility to water erosion: High

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3e

Prime farmland category: Not prime farmland

Hydric soil status: Not hydric

Sabina Series

Taxonomic classification: Fine, smectitic, mesic Aeric Epiaqualfs

Taxadjunct features: The Sabina soils in this survey area are slightly better drained than is defined as the range for the series. This difference, however, does not significantly affect the use, management, or interpretations of the soils. These soils are classified as fine, smectitic, mesic Aquic Hapludalfs.

Typical Pedon

Sabina silt loam, 0 to 2 percent slopes, at an elevation of 843 feet above mean sea level; McLean County, Illinois; 1,452 feet east and 231 feet north of the southwest corner of sec. 34, T. 23 N., R. 4 E.; USGS Arrowsmith, Illinois, topographic quadrangle; lat. 40 degrees 23 minutes 58.4 seconds N. and long. 88 degrees 44 minutes 24.4 seconds W.; UTM Zone 16T, Easting 0352331, Northing 4473560; NAD 83:

- Ap—0 to 7 inches; brown (10YR 4/3) and dark grayish brown (10YR 4/2) silt loam mixed with pockets of grayish brown (10YR 5/2) material from the subsurface layer; mostly weak fine and medium subangular blocky structure, some thin platy structure in the lower part; friable; slightly acid; abrupt smooth boundary.
- E—7 to 14 inches; grayish brown (10YR 5/2) silt loam; moderate medium platy structure; friable; very few distinct light gray (10YR 7/1) and grayish brown (10YR 5/2) silt coatings on faces of peds; common fine prominent iron-manganese coatings and concretions throughout; strongly acid; clear smooth boundary.
- BE—14 to 18 inches; dark grayish brown (10YR 4/2) silt loam; moderate fine angular blocky and weak medium platy structure; friable; few faint dark brown (10YR 3/3) organo-clay films and dark grayish brown (10YR 4/2) clay films on faces of peds; few faint light brownish gray (10YR 6/2) (dry) silt coatings on faces of peds; few fine faint gray (10YR 5/1) iron depletions and common fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine prominent iron-manganese coatings and concretions throughout; strongly acid; clear smooth boundary.
- Bt1—18 to 30 inches; brown (10YR 4/3) silty clay loam; moderate medium prismatic structure parting to moderate fine and medium angular blocky; firm; common distinct brown (10YR 5/3) and grayish brown (10YR 5/2) clay films on faces of peds; few faint light brownish gray (10YR 6/2) (dry) silt coatings on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions and common fine and medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine prominent iron-manganese coatings and concretions throughout; slightly acid; gradual wavy boundary.
- Bt2—30 to 35 inches; brown (10YR 4/3) silty clay loam; weak medium prismatic structure parting to weak medium angular blocky; firm; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine and medium faint grayish brown (10YR 5/2) iron depletions and distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine prominent iron-manganese coatings and concretions throughout; neutral; gradual wavy boundary.
- Bt3—35 to 45 inches; brown (10YR 5/3) and yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; few distinct dark gray (10YR 4/1) and dark grayish brown (10YR 4/2) clay films on faces of peds and in root channels; common fine and medium faint and distinct grayish brown (10YR 5/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine prominent iron-manganese coatings and concretions throughout; neutral; abrupt smooth boundary.
- 2Bt4—45 to 51 inches; olive brown (2.5Y 4/4) loam; weak medium and coarse subangular blocky structure; firm; few faint dark grayish brown (10YR 4/2) clay films and light brownish gray (10YR 6/2) (dry) silt coatings lining root channels and pores; few fine and medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; few fine prominent masses of calcium carbonate throughout; strongly effervescent; slightly alkaline; clear smooth boundary.
- 2Cd—51 to 60 inches; olive brown (2.5Y 4/4) loam; massive; firm; few medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; violently effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess: 40 to 60 inches

Depth to carbonates: 40 to 75 inches

Depth to the base of the argillic horizon: 44 to 75 inches

Ap or A horizon:

Hue—10YR

Value—3 to 5

Chroma—2 or 3

Texture—silt loam

Content of rock fragments—none

Reaction—strongly acid to neutral

E horizon (where present):

Hue—10YR

Value—4 or 5

Chroma—1 to 3

Texture—silt loam

Content of rock fragments—none

Reaction—very strongly acid to neutral

BE horizon (where present):

Hue—10YR or 2.5Y

Value—4 or 5

Chroma—2 to 4

Texture—silt loam or silty clay loam

Content of rock fragments—none

Reaction—strongly acid or moderately acid

Bt horizon:

Hue—10YR or 2.5Y

Value—4 or 5

Chroma—2 to 4

Texture—silty clay or silty clay loam

Content of rock fragments—none

Reaction—very strongly acid to neutral

2Bt horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 or 5

Chroma—2 to 4

Texture—loam or clay loam

Content of rock fragments—1 to 5 percent

Reaction—neutral or slightly alkaline

2Cd horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 or 5

Chroma—2 to 4

Texture—loam, clay loam, or silt loam

Content of rock fragments—1 to 10 percent

Reaction—slightly alkaline or moderately alkaline

236A—Sabina silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines

Position on the landform: Foothills, summits

Map Unit Composition

Sabina and similar soils: 92 percent

Dissimilar soils: 8 percent

Components of Minor Extent

Similar soils:

- Soils that are browner in the upper part of the subsoil
- Soils that have less clay in the subsoil
- Soils that have fewer fragments in the lower part of the substratum

Dissimilar soils:

- The poorly drained Drummer and Sable soils in swales

Properties and Qualities of the Sabina Soil

Parent material: Silty and clayey loess over loamy till

Drainage class: Somewhat poorly drained

Slowest permeability within a depth of 40 inches: Moderately slow

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 9.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.5 percent

Shrink-swell potential: High

Depth and months of highest perched seasonal high water table: 1 foot, January through May

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and concrete

Surface runoff class: Medium

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 1

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Sable Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Endoaquolls

Typical Pedon

Sable silty clay loam, 0 to 2 percent slopes, at an elevation of 732 feet above mean sea level; Warren County, Illinois; 97 feet west and 1,281 feet south of the northeast corner of sec. 14, T. 9 N., R. 3 W.; USGS Kirkwood East, Illinois, topographic

Soil Survey of Macon County, Illinois

quadrangle; lat. 40 degrees 46 minutes 22.5 seconds N. and long. 90 degrees 41 minutes 34.2 seconds W.; UTM Zone 15T, Easting 0694708, Northing 4516111; NAD 83:

- Ap—0 to 8 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine and medium granular structure; firm; moderately acid; abrupt smooth boundary.
- A—8 to 19 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate very fine angular blocky structure; firm; few fine distinct spherical dark reddish brown (5YR 3/2) very weakly cemented iron-manganese concretions throughout; slightly acid; clear smooth boundary.
- AB—19 to 23 inches; very dark gray (10YR 3/1) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine angular blocky structure; firm; few faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; few fine distinct spherical dark reddish brown (5YR 3/2) very weakly cemented iron-manganese concretions throughout; slightly acid; clear smooth boundary.
- Bg—23 to 29 inches; dark gray (10YR 4/1) silty clay loam; moderate fine and medium subangular blocky structure; firm; common faint very dark gray (10YR 3/1) organic coatings on faces of peds; common medium distinct brown (10YR 5/3) masses of oxidized iron-manganese in the matrix; few medium faint dark grayish brown (10YR 4/2) iron depletions in the matrix; common fine and medium distinct spherical dark reddish brown (5YR 3/2) very weakly cemented iron-manganese concretions throughout; neutral; clear smooth boundary.
- Btg1—29 to 38 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium and coarse subangular blocky structure; firm; few distinct dark gray (10YR 4/1) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; many fine and medium prominent spherical dark reddish brown (5YR 3/2) very weakly cemented iron-manganese concretions throughout; neutral; clear wavy boundary.
- Btg2—38 to 47 inches; gray (N 5/) silt loam; weak medium prismatic structure parting to weak medium and coarse angular blocky; firm; few distinct grayish brown (10YR 5/2) clay films on faces of prisms; many medium prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; common fine prominent spherical dark reddish brown (5YR 3/2) very weakly cemented iron-manganese concretions throughout; slightly alkaline; gradual smooth boundary.
- Cg—47 to 60 inches; gray (N 6/) silt loam; massive; friable; many medium prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; slightly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 12 to 24 inches

Thickness of the loess: More than 60 inches

Depth to carbonates: More than 40 inches

Depth to the base of the cambic horizon: 40 to 60 inches

Ap, A, or AB horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—2 to 3

Chroma—0 or 1

Texture—silty clay loam

Content of rock fragments—none

Reaction—moderately acid to neutral

Bg or Btg horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—3 to 6

Chroma—0 to 2
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—moderately acid to slightly alkaline

Cg horizon:

Hue—10YR, 2.5Y, 5Y, or N
Value—3 to 6
Chroma—0 to 2
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—neutral to moderately alkaline

68A—Sable silty clay loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines, till plains

Position on the landform: Toeslopes

Map Unit Composition

Sable and similar soils: 85 percent

Dissimilar soils: 15 percent

Components of Minor Extent

Similar soils:

- Somewhat poorly drained soils on rises; in landscape positions above those of the Sable soil
- Soils that have more clay in the subsoil
- Soils that have a very thick dark surface layer
- Soils that have more sand in the substratum
- Soils that have stratified sediments in the substratum
- Soils that have carbonates above a depth of 40 inches
- Soils that have brighter colors in the lower part of the subsoil and in the substratum

Dissimilar soils:

- Soils near streams that are subject to flooding
- The moderately well drained Buckhart and well drained Osco soils on rises and side slopes; in landscape positions above those of the Sable soil

Properties and Qualities of the Sable Soil

Parent material: Loess

Drainage class: Poorly drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 10.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 4.5 to 6.0 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: At the surface,
January through May

Ponding (average depth during the wettest periods or after heavy rainfall): 0.2 foot

Frequency and most likely period of ponding: Frequent, November through June

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and low for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2w

Prime farmland category: Prime farmland where drained

Hydric soil status: Hydric

Sawmill Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Cumulic Endoaquolls

Typical Pedon

Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded, at an elevation of 535 feet above mean sea level; Sangamon County, Illinois; 750 feet east and 300 feet south of the northwest corner of sec. 20, T. 15 N., R. 4 W.; USGS New City, Illinois, topographic quadrangle; lat. 39 degrees 44 minutes 34.2 seconds N. and long. 89 degrees 34 minutes 15.3 seconds W.; UTM Zone 16S, Easting 0279712, Northing 4402375; NAD 83:

Ap—0 to 10 inches; very dark gray (10YR 3/1) and very dark grayish brown (10YR 3/2) silty clay loam, gray (10YR 5/1) dry; weak fine subangular blocky structure; firm; few fine roots; few subrounded pebbles 1 to 3 mm in diameter; slightly acid; clear smooth boundary.

A1—10 to 17 inches; black (10YR 2/1) and very dark grayish brown (10YR 3/2) silty clay loam, dark gray (10YR 4/1) dry; moderate fine subangular blocky structure; firm; few fine roots; few fine faint spherical black (7.5YR 2.5/1) weakly cemented iron-manganese concretions with diffuse boundaries along root channels and pores; few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few subrounded pebbles 1 to 3 mm in diameter; neutral; clear smooth boundary.

A2—17 to 25 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine and medium angular blocky structure; firm; few fine roots; few fine faint spherical black (7.5YR 2.5/1) weakly cemented iron-manganese concretions with diffuse boundaries along root channels and pores; few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; neutral; clear smooth boundary.

AB—25 to 32 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; weak medium prismatic structure parting to moderate fine subangular blocky; firm; few fine roots; few fine faint spherical black (7.5YR 2.5/1) weakly cemented iron-manganese concretions with diffuse boundaries along root channels and pores; few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; neutral; clear smooth boundary.

Bg—32 to 40 inches; dark gray (10YR 4/1) silty clay loam; weak medium prismatic structure parting to moderate fine and medium angular blocky; firm; few fine roots; common faint very dark gray (10YR 3/1) organic coatings on faces of peds; few fine faint spherical black (7.5YR 2.5/1) weakly cemented iron-manganese concretions with diffuse boundaries along root channels and pores; few fine prominent strong brown (7.5YR 5/6) masses of oxidized iron in the matrix; slightly alkaline; clear smooth boundary.

- Btg1—40 to 49 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium prismatic structure parting to weak medium angular blocky; firm; common distinct dark gray (10YR 4/1) clay films on faces of peds; few fine distinct spherical black (7.5YR 2.5/1) weakly cemented iron-manganese concretions with diffuse boundaries along root channels and pores; few fine prominent strong brown (7.5YR 5/6) masses of oxidized iron and common fine distinct yellowish brown (10YR 5/4) masses of oxidized iron-manganese in the matrix; slightly alkaline; clear smooth boundary.
- Btg2—49 to 58 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure; firm; many thin gray (10YR 5/1) clay films on faces of peds; few fine prominent spherical black (7.5YR 2.5/1) weakly cemented iron-manganese concretions with diffuse boundaries along pores; few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; slightly alkaline; clear smooth boundary.
- Cg—58 to 65 inches; grayish brown (2.5Y 5/2) silty clay loam; massive; firm; very dark gray (10YR 3/1) channel linings and fillings; many medium prominent yellowish brown (10YR 5/6) masses of oxidized iron in pores; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 24 to 36 inches

Depth to carbonates: More than 40 inches

Depth to the base of the cambic horizon: 36 to 60 inches

Ap, A, or AB horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—2 to 3

Chroma—0 to 2

Texture—silty clay loam

Content of rock fragments—0 to 2 percent

Reaction—slightly acid to slightly alkaline

Bg or Btg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—3 to 6

Chroma—1 or 2

Texture—silty clay loam

Content of rock fragments—0 to 2 percent

Reaction—slightly acid to slightly alkaline

Cg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—3 to 6

Chroma—1 or 2

Texture—silty clay loam or clay loam; stratified with other textures in some pedons

Content of rock fragments—0 to 2 percent

Reaction—slightly acid to slightly alkaline

1107A—Sawmill silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Sawmill and similar soils: 90 percent

Dissimilar soils: 10 percent

Components of Minor Extent

Similar soils:

- Soils that have more sand in the subsoil
- Somewhat poorly drained soils in landscape positions similar to those of the Sawmill soil
- Soils that have a dark surface layer less than 24 inches thick
- Soils that have more clay in the subsoil

Dissimilar soils:

- Soils on side slopes that are not subject to flooding; in landscape positions above those of the Sawmill soil
- Moderately well drained and well drained soils on rises; in landscape positions above those of the Sawmill soil
- Soils that have a sandy substratum; on bars and terraces in landscape positions above those of the Sawmill soil

Properties and Qualities of the Sawmill Soil

Parent material: Silty alluvium

Drainage class: Very poorly drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 11.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 4.5 to 7.0 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: At the surface, November through June

Ponding (average depth during the wettest periods or after heavy rainfall): 0.2 foot

Frequency and most likely period of ponding: Frequent, November through June

Frequency and most likely period of flooding: Frequent, November through June

Potential for frost action: High

Hazard of corrosion: Moderate for steel and low for concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 5w

Prime farmland category: Not prime farmland

Hydric soil status: Hydric

3107A—Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Sawmill and similar soils: 92 percent

Dissimilar soils: 8 percent

Components of Minor Extent

Similar soils:

- Soils that have more sand in the subsoil
- Soils that are browner in the subsoil; in landscape positions similar to those of the Sawmill soil
- Soils that have a dark surface layer less than 24 inches thick
- Soils that have more clay in the subsoil

Dissimilar soils:

- Soils on side slopes that are not subject to flooding; in landscape positions above those of the Sawmill soil
- Moderately well drained and well drained soils on rises; in landscape positions above those of the Sawmill soil
- Soils that have a sandy substratum; on bars and terraces in landscape positions above those of the Sawmill soil

Properties and Qualities of the Sawmill Soil

Parent material: Silty alluvium

Drainage class: Poorly drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 4.5 to 7.0 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: At the surface, January through May

Ponding (average depth during the wettest periods or after heavy rainfall): 0.2 foot

Frequency and most likely period of ponding: Frequent, November through June

Frequency and most likely period of flooding: Frequent, November through June

Potential for frost action: High

Hazard of corrosion: High for steel and low for concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3w

Prime farmland category: Prime farmland where drained and either protected from flooding or not frequently flooded during the growing season

Hydric soil status: Hydric

Senachwine Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Senachwine silt loam, 10 to 18 percent slopes, eroded, on a slope of 11 percent at an elevation of 856 feet above mean sea level; Bureau County, Illinois; about 1,040 feet west and 1,345 feet south of the northeast corner of sec. 21, T. 15 N., R. 8 E.; USGS Wyand, Illinois, topographic quadrangle; lat. 41 degrees 16 minutes 25.4 seconds N. and long. 89 degrees 34 minutes 18.3 seconds W.; UTM Zone 16T, Easting 0284600, Northing 4572335; NAD 83:

- Ap—0 to 6 inches; mixed brown (10YR 4/3) and yellowish brown (10YR 5/4) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; common fine roots; neutral; abrupt smooth boundary.
- Bt1—6 to 15 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; friable; few fine roots; common faint dark yellowish brown (10YR 4/4) clay films on faces of peds; moderately acid; clear smooth boundary.
- 2Bt2—15 to 28 inches; brown (7.5YR 5/4) clay loam; moderate medium subangular blocky structure; firm; few fine roots; many faint brown (7.5YR 4/4) clay films on faces of peds; few fine prominent spherical black (N 2.5/) weakly cemented iron-manganese concretions throughout; neutral; clear smooth boundary.
- 2BCt—28 to 34 inches; brown (7.5YR 5/4) loam; weak coarse prismatic structure; firm; few fine roots; common faint brown (7.5YR 4/4) clay films on faces of peds; 5 percent rock fragments; slightly effervescent; slightly alkaline; clear smooth boundary.
- 2C—34 to 60 inches; brown (7.5YR 5/4) loam; massive; firm; 5 percent rock fragments; violently effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess: 0 to 18 inches

Depth to carbonates: 20 to 40 inches

Depth to base of the argillic horizon: 24 to 40 inches

Ap or A horizon:

Hue—10YR

Value—3 to 5

Chroma—1 to 4

Texture—silt loam

Content of rock fragments—0 to 3 percent

Reaction—moderately acid to neutral

E horizon (where present):

Hue—10YR

Value—4 or 5

Chroma—2 to 4

Texture—silt loam or loam

Content of rock fragments—0 to 3 percent

Reaction—moderately acid to neutral

Bt or 2Bt horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—3 to 6

Texture—silty clay loam, clay loam, or loam

Content of rock fragments—1 to 10 percent

Reaction—strongly acid to neutral

BC, BCt, 2BCt, or 2BC horizon (where present):

Colors—similar to those in the B horizon

Texture—similar to that of the C horizon

Reaction—similar to that of the C horizon

C or 2C horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—5 or 6

Chroma—3 or 4

Texture—clay loam or loam

Content of rock fragments—1 to 10 percent
Reaction—slightly alkaline or moderately alkaline

618C2—Senachwine silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines, end moraines
Position on the landform: Backslopes

Map Unit Composition

Senachwine and similar soils: 95 percent
Dissimilar soils: 5 percent

Components of Minor Extent

Similar soils:

- Soils that are severely eroded
- Soils that have a thin dark surface layer
- Soils that have more clay in the surface layer
- Soils that have a dense substratum
- Soils that have development below a depth of 40 inches
- Soils that are less sloping
- Soils that are more sloping
- Soils that have carbonates above a depth of 20 inches or below a depth of 40 inches

Dissimilar soils:

- Soils near streams that are subject to flooding
- The poorly drained Sawmill soils on flood plains
- Somewhat poorly drained or poorly drained soils at the head of drainageways and near seeps

Properties and Qualities of the Senachwine Soil

Parent material: Till

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderately slow

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 7.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Moderate

Ponding: None

Flooding: None

Accelerated erosion: The surface layer has been thinned by erosion.

Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3e

Prime farmland category: Not prime farmland

Hydric soil status: Not hydric

618D2—Senachwine silt loam, 10 to 18 percent slopes, eroded

Setting

Landform: End moraines, ground moraines

Position on the landform: Backslopes

Map Unit Composition

Senachwine and similar soils: 95 percent

Dissimilar soils: 5 percent

Components of Minor Extent

Similar soils:

- Soils that are severely eroded
- Soils that have a thin dark surface layer
- Soils that have more clay in the surface layer
- Soils that have a dense substratum
- Soils that have development below a depth of 40 inches
- Soils that are less sloping
- Soils that are more sloping
- Soils that have carbonates above a depth of 20 inches or below a depth of 40 inches

Dissimilar soils:

- Soils near streams that are subject to flooding
- The poorly drained Sawmill soils on flood plains
- Somewhat poorly drained or poorly drained soils at the head of drainageways and near seeps

Properties and Qualities of the Senachwine Soil

Parent material: Till

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderately slow

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 8 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Moderate

Ponding: None

Flooding: None

Accelerated erosion: The surface layer has been thinned by erosion.

Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and concrete

Surface runoff class: Medium

Susceptibility to water erosion: High

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 4e

Prime farmland category: Not prime farmland

Hydric soil status: Not hydric

618D3—Senachwine clay loam, 10 to 18 percent slopes, severely eroded

Setting

Landform: End moraines, ground moraines

Position on the landform: Backslopes

Map Unit Composition

Senachwine and similar soils: 95 percent

Dissimilar soils: 5 percent

Components of Minor Extent

Similar soils:

- Soils that are moderately eroded
- Soils that have carbonates above a depth of 20 inches
- Soils that are more sloping
- Soils that have less clay or less sand in the surface layer
- Soils that are moderately well drained
- Soils that are underlain by a dense substratum
- Soils that have less development in the subsoil

Dissimilar soils:

- Soils that are underlain by sandy or silty outwash
- Somewhat poorly drained or poorly drained soils near seeps
- Soils near streams that are subject to flooding
- The poorly drained Sawmill soils on flood plains
- Soils that are not eroded or are only slightly eroded

Properties and Qualities of the Senachwine Soil

Parent material: Till

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderately slow

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 7.4 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.3 to 1.0 percent

Shrink-swell potential: Moderate

Ponding: None

Flooding: None

Accelerated erosion: The surface layer is mostly subsoil material.

Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and concrete

Surface runoff class: Medium

Susceptibility to water erosion: High

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 4e

Prime farmland category: Not prime farmland

Hydric soil status: Not hydric

618F—Senachwine silt loam, 18 to 35 percent slopes

Setting

Landform: End moraines, ground moraines

Position on the landform: Backslopes

Map Unit Composition

Senachwine and similar soils: 90 percent

Dissimilar soils: 10 percent

Components of Minor Extent

Similar soils:

- Soils that have slopes of more than 35 percent
- Soils that are moderately well drained
- Soils that are underlain by a dense substratum
- Soils that have less development in the subsoil
- Soils that have carbonates above a depth of 20 inches
- Soils that have more than 55 percent sand in the substratum
- Soils that have more than 10 percent rock fragments in the substratum

Dissimilar soils:

- Somewhat poorly drained or poorly drained soils near seeps
- The poorly drained Sawmill soils on flood plains
- Soils near streams that are subject to flooding
- Soils that are underlain by sandy or silty outwash

Properties and Qualities of the Senachwine Soil

Parent material: Till

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 8.4 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.5 percent

Shrink-swell potential: Moderate

Ponding: None

Flooding: None

Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and concrete

Surface runoff class: High

Susceptibility to water erosion: High

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 6e

Prime farmland category: Not prime farmland

Hydric soil status: Not hydric

618G—Senachwine silt loam, 35 to 60 percent slopes

Setting

Landform: End moraines, ground moraines

Position on the landform: Backslopes

Map Unit Composition

Senachwine and similar soils: 92 percent

Dissimilar soils: 8 percent

Components of Minor Extent

Similar soils:

- Soils that have slopes of more than 35 percent
- Soils that are moderately well drained
- Soils that are underlain by a dense substratum
- Soils that have less development in the subsoil
- Soils that have carbonates above a depth of 20 inches
- Soils that have more than 55 percent sand in the substratum
- Soils that have more than 10 percent rock fragments in the substratum

Dissimilar soils:

- Somewhat poorly drained or poorly drained soils near seeps
- The poorly drained Sawmill soils on flood plains
- Soils near streams that are subject to flooding
- Soils that are underlain by sandy or silty outwash

Properties and Qualities of the Senachwine Soil

Parent material: Till

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderately slow

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 8.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.5 percent

Shrink-swell potential: Moderate

Ponding: None

Flooding: None

Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and concrete

Surface runoff class: High

Susceptibility to water erosion: High

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 7e

Prime farmland category: Not prime farmland

Hydric soil status: Not hydric

Shiloh Series

Taxonomic classification: Fine, smectitic, mesic Cumulic Vertic Endoaquolls

Typical Pedon

Shiloh silty clay loam, 0 to 2 percent slopes, at an elevation of 619 feet above mean sea level; Effingham County, Illinois; 1,580 feet north and 50 feet east of the southwest corner of sec. 11, T. 8 N., R. 4 E.; USGS Shumway, Illinois, topographic quadrangle; lat. 39 degrees 09 minutes 06.4 seconds N. and long. 88 degrees 43 minutes 43.5 seconds W.; UTM Zone 16S, Easting 0350621, Northing 4335042; NAD 83:

Soil Survey of Macon County, Illinois

- Ap—0 to 7 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; weak medium granular and angular blocky structure; firm; common very fine and few fine roots throughout; common very fine tubular pores; slightly acid; abrupt smooth boundary.
- A—7 to 19 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate very fine angular blocky structure; firm; common very fine and few fine roots throughout; common very fine tubular pores; slightly acid; gradual smooth boundary.
- BA—19 to 35 inches; black (10YR 2/1) silty clay, dark gray (10YR 4/1) dry; strong fine angular blocky structure; very firm; common very fine and few fine roots throughout; common very fine tubular pores; many distinct black (N 2.5/) pressure faces on faces of peds; slightly acid; gradual smooth boundary.
- Bg1—35 to 48 inches; very dark gray (N 3/) silty clay, gray (N 5/) dry; strong fine angular blocky structure; very firm; common very fine roots throughout; common very fine tubular pores; common prominent black (10YR 2/1) pressure faces on faces of peds; few fine prominent light olive brown (2.5Y 5/6) masses of oxidized iron on faces of peds and in the matrix; slightly acid; clear smooth boundary.
- Bg2—48 to 60 inches; dark gray (5Y 4/1) silty clay loam; weak and moderate medium subangular blocky structure; very firm; common very fine roots throughout; common very fine tubular pores; common fine prominent light olive brown (2.5Y 5/6) and few fine prominent yellowish brown (10YR 5/8) masses of oxidized iron on faces of peds and in the matrix; common medium prominent black (10YR 2/1) masses of manganese in the matrix; slightly acid; clear smooth boundary.
- Bg3—60 to 68 inches; gray (10YR 6/1) silty clay loam; weak medium subangular blocky structure; firm; common very fine roots throughout; common very fine tubular pores; few faint patchy dark gray (2.5Y 4/1) clay films on faces of peds and common distinct dark gray (2.5Y 4/1) clay films on surfaces lining root channels and pores; few fine and medium prominent yellowish brown (10YR 5/6) masses of oxidized iron on faces of peds and in the matrix; slightly acid; abrupt smooth boundary.
- 2Ab—68 to 79 inches; very dark gray (2.5Y 3/1) silty clay loam; weak coarse subangular blocky structure; firm; few very fine roots throughout; common very fine tubular pores; common distinct very dark gray (2.5Y 3/1) organo-clay films on surfaces lining root channels and pores; about 2 percent fine subangular rock fragments; slightly acid; clear smooth boundary.
- 2Btgb—79 to 86 inches; gray (10YR 6/1) clay; moderate medium prismatic structure parting to moderate medium angular blocky; very firm; common very fine tubular pores; common distinct very dark gray (2.5Y 3/1) organo-clay films on faces of peds and many distinct very dark gray (2.5Y 3/1) organo-clay films on surfaces lining root channels and pores; few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron on faces of peds and in the matrix; about 2 percent fine subangular rock fragments; slightly acid.

Range in Characteristics

Thickness of the mollic epipedon: 24 to 48 inches

Thickness of the loess or colluvial sediment: More than 60 inches

Depth to carbonates: More than 39 inches

Depth to the base of the cambic horizon: More than 40 inches

Ap or A horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—2 to 3

Chroma—0 to 2

Texture—silty clay loam

Content of rock fragments—none
Reaction—slightly acid or neutral

BA, BAg, or Bg horizon:

Hue—10YR, 2.5Y, 5Y, or N
Value—2 to 6
Chroma—0 to 2
Texture—silty clay or silty clay loam
Content of rock fragments—none
Reaction—slightly acid or neutral

BCg or C horizon (where present):

Hue—10YR, 2.5Y, 5Y, or N
Value—3 to 6
Chroma—0 to 2
Texture—silty clay loam, silty clay, or silt loam
Content of rock fragments—none
Reaction—slightly acid to slightly alkaline

2Ab or 2Btgb horizon (where present):

Hue—10YR, 2.5Y, 5Y, or N
Value—2 to 4 in the 2Ab horizon; 4 to 6 in the 2Btgb horizon
Chroma—0 to 3 in the 2Ab horizon; 0 to 2 in the 2Btgb horizon
Texture—clay loam, clay, silty clay, or silty clay loam
Content of rock fragments—0 to 10 percent
Reaction—slightly acid to slightly alkaline in the 2Ab horizon; slightly acid or neutral in the 2Btgb horizon

138A—Shiloh silty clay loam, 0 to 2 percent slopes

Setting

Landform: Depressions on till plains

Map Unit Composition

Shiloh and similar soils: 90 percent

Dissimilar soils: 10 percent

Components of Minor Extent

Similar soils:

- Soils that are poorly drained; in landscape positions similar to those of the Shiloh soil
- Soils that have a dark surface layer less than 24 inches thick
- Soils that have less clay in the subsoil
- Soils that have less clay in the surface layer as a result of overwash
- Soils that are lighter colored in the underlying material

Dissimilar soils:

- Soils near streams that are subject to flooding
- Somewhat poorly drained soils on footslopes; in landscape positions above those of the Shiloh soil

Properties and Qualities of the Shiloh Soil

Parent material: Loess or silty and clayey colluvium over paleo accretionary deposits and/or till

Drainage class: Very poorly drained

Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3 to 5 percent
Shrink-swell potential: High
Depth and months of highest apparent seasonal high water table: At the surface,
January through June
Ponding (average depth during the wettest periods or after heavy rainfall): 0.5 foot
Frequency and most likely period of ponding: Frequent, November through June
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Moderate

Interpretive Groups

Land capability classification: 3w
Prime farmland category: Prime farmland where drained
Hydric soil status: Hydric

Sparta Series

Taxonomic classification: Sandy, mixed, mesic Entic Hapludolls
Taxadjunct features: The Sparta soils in this survey area are slightly more developed than is defined as the range for the series. This difference, however, does not significantly affect the use, management, or interpretations of the soils. These soils are classified as sandy, mixed, mesic Typic Hapludolls.

Typical Pedon

Sparta loamy sand, 5 to 10 percent slopes, on a slope of 7 percent at an elevation of 595 feet above mean sea level; Macon County, Illinois; 1,540 feet east and 640 feet south of the northwest corner of sec. 30, T. 16 N., R. 1 E.; USGS Niantic, Illinois, topographic quadrangle; lat. 39 degrees 48 minutes 52.1 seconds N. and long. 89 degrees 08 minutes 11.9 seconds W.; UTM Zone 16S, Easting 0317116, Northing 4409351; NAD 83:

- Ap—0 to 12 inches; very dark grayish brown (10YR 3/2) loamy sand, grayish brown (10YR 5/2) dry; weak medium granular structure; very friable; moderately acid; clear smooth boundary.
- BA—12 to 17 inches; brown (10YR 4/3) loamy fine sand; weak medium subangular blocky structure; very friable; many distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds and on sand grains; moderately acid; clear smooth boundary.
- Bt—17 to 31 inches; yellowish brown (10YR 5/4) loamy sand; weak medium subangular blocky structure; very friable; few faint dark brown (10YR 3/3) organo-clay bridges between sand grains; slightly acid; clear smooth boundary.
- BC—31 to 40 inches; yellowish brown (10YR 5/6) fine sand; single grain; loose; slightly acid; clear smooth boundary.
- C—40 to 60 inches; light yellowish brown (10YR 6/4) fine sand; single grain; loose; slightly acid.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches

Depth to carbonates: More than 80 inches

Ap or A horizon:

Hue—7.5YR or 10YR

Value—2 to 3

Chroma—1 or 2

Texture—loamy sand

Content of rock fragments—typically none

Reaction—strongly acid to slightly acid

BA or AB horizon (where present):

Hue—7.5YR or 10YR

Value—2 to 3

Chroma—1 or 2

Texture—loamy fine sand, loamy sand, fine sand, or sand

Content of rock fragments—typically none

Reaction—strongly acid to slightly acid

Bt or Bw horizon (where present):

Hue—7.5YR or 10YR

Value—3 to 6

Chroma—3 to 6

Texture—loamy sand, sand, loamy fine sand, or fine sand

Content of rock fragments—0 to 5 percent

Reaction—strongly acid to slightly acid

BC or C horizon:

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—3 to 6

Texture—stratified sand to loamy fine sand; lamellae with a total thickness of less than 6 inches above a depth of 80 inches in some pedons

Content of rock fragments—0 to 10 percent

Reaction—strongly acid to neutral

88C—Sparta loamy sand, 5 to 10 percent slopes

Setting

Landform: Outwash terraces, stream terraces

Position on the landform: Backslopes, shoulders

Map Unit Composition

Sparta and similar soils: 95 percent

Dissimilar soils: 5 percent

Components of Minor Extent

Similar soils:

- Well drained soils on summits; in landscape positions above those of the Sparta soil
- Soils on stream terraces that are subject to rare flooding
- Soils that have less sand in the subsoil
- Soils that are more acid in the upper part

- Soils that are slightly more developed
- Soils that are moderately eroded

Dissimilar soils:

- Soils that are severely eroded
- The somewhat poorly drained Elburn soils on toeslopes; in landscape positions below those of the Sparta soil
- Soils that are subject to more frequent flooding
- The poorly drained Sawmill and somewhat poorly drained Lawson soils on flood plains; in landscape positions below those of the Sparta soil

Properties and Qualities of the Sparta Soil

Parent material: Sandy alluvium

Drainage class: Excessively drained

Slowest permeability within a depth of 40 inches: Rapid

Permeability below a depth of 60 inches: Rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 3.4 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2 to 4 percent

Shrink-swell potential: Low

Ponding: None

Flooding: None

Potential for frost action: Low

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: High

Interpretive Groups

Land capability classification: 4s

Prime farmland category: Not prime farmland

Hydric soil status: Not hydric

Spaulding Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Calciaquolls

Typical Pedon

Spaulding silty clay loam, 0 to 2 percent slopes, at an elevation of 612 feet above mean sea level; Sangamon County, Illinois; about 2 miles east of Buffalo Hart; 2,410 feet east and 1,300 feet south of the northwest corner of sec. 22, T. 17 N., R. 3 W.; USGS Cornland, Illinois, topographic quadrangle; lat. 39 degrees 54 minutes 52.8 seconds N. and long. 89 degrees 24 minutes 54.7 seconds W.; UTM Zone 16S, Easting 0293572, Northing 4421078; NAD 83:

Apk—0 to 9 inches; black (10YR 2/1) silty clay loam, very dark gray (10YR 3/1) dry; weak and moderate fine granular structure; friable; many fine roots throughout; few snail shells; violently effervescent; 15 percent calcium carbonate equivalent; moderately alkaline; abrupt smooth boundary.

Ak1—9 to 18 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate very fine and fine subangular blocky structure; friable; many fine roots throughout; few snail shells; violently effervescent; 22 percent calcium carbonate equivalent; moderately alkaline; clear smooth boundary.

Ak2—18 to 22 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; moderate very fine and fine subangular blocky structure; firm; common fine roots

- throughout; few fine prominent light olive brown (2.5Y 5/6) masses of oxidized iron along micropores; few snail shells; violently effervescent; 22 percent calcium carbonate equivalent; moderately alkaline; clear smooth boundary.
- Btkg1—22 to 26 inches; dark gray (2.5Y 4/1) silty clay loam; moderate very fine and fine subangular blocky structure; firm; common fine roots throughout; common distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; common distinct black (10YR 2/1) organic coatings in root channels and/or pores; few fine prominent light olive brown (2.5Y 5/6) masses of iron accumulation along micropores; few fine calcium carbonate nodules; strongly effervescent; 12 percent calcium carbonate equivalent; moderately alkaline; clear smooth boundary.
- Btkg2—26 to 32 inches; olive gray (5Y 5/2) silty clay loam; moderate fine and medium subangular blocky structure; firm; common fine roots throughout; few distinct gray (5Y 5/1) clay films on faces of peds; common fine prominent spherical black (10YR 2/1) masses of manganese in the matrix; common medium prominent light olive brown (2.5Y 5/6) and yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; common medium and coarse calcium carbonate nodules; strongly effervescent; 12 percent calcium carbonate equivalent; moderately alkaline; clear smooth boundary.
- Btkg3—32 to 38 inches; gray (5Y 6/1) silty clay loam; moderate fine and medium subangular blocky structure; firm; few distinct gray (5Y 5/1) clay films on faces of peds; very few distinct very dark gray (10YR 3/1) organic coatings in root channels and/or pores; many fine prominent light olive brown (2.5Y 5/6) and few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine calcium carbonate nodules; strongly effervescent; 16 percent calcium carbonate equivalent; moderately alkaline; clear smooth boundary.
- BCkg—38 to 44 inches; gray (5Y 6/1) silty clay loam; weak medium subangular blocky structure; firm; few distinct gray (5Y 5/1) clay films in root channels and/or pores; few distinct very dark gray (10YR 3/1) organic coatings in root channels and/or pores; many fine prominent light olive brown (2.5Y 5/6) and few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine calcium carbonate nodules; strongly effervescent; 16 percent calcium carbonate equivalent; moderately alkaline; clear smooth boundary.
- Cg—44 to 80 inches; gray (5Y 6/1) silt loam; massive; friable; many medium prominent strong brown (7.5YR 5/8) masses of oxidized iron in the matrix; strongly effervescent; 19 percent calcium carbonate equivalent; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches

Thickness of the loess: More than 80 inches

Depth to carbonates: 16 inches or less

Depth to the base of the cambic horizon: 22 to 60 inches

Ap, Apk, or Ak horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—2 to 3

Chroma—0 or 1

Texture—silty clay loam

Content of rock fragments—none

Reaction—slightly alkaline or moderately alkaline

Bkg or Btkg horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—3 to 6

Chroma—0 to 2
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—slightly alkaline or moderately alkaline

BCKg horizon:

Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 8
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—slightly alkaline or moderately alkaline

Cg horizon:

Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 8
Texture—silt loam
Content of rock fragments—none
Reaction—slightly alkaline or moderately alkaline

712A—Spaulding silty clay loam, 0 to 2 percent slopes

Setting

Landform: Depressions on till plains and outwash plains

Map Unit Composition

Spaulding and similar soils: 91 percent
Dissimilar soils: 9 percent

Components of Minor Extent

Similar soils:

- Soils that contain more sand in the substratum
- Soils that have a thicker dark surface layer
- Soils that have more clay in the subsoil

Dissimilar soils:

- The moderately well drained Buckhart and well drained Osco soils on rises; in landscape positions above those of the Spaulding soil
- Soils near streams that are subject to flooding

Properties and Qualities of the Spaulding Soil

Parent material: Calcareous loess

Drainage class: Poorly drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 12.8 inches to a depth of 60 inches

Content of organic matter in the surface layer: 4 to 6 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: At the surface,
January through May

Ponding (average depth during the wettest periods or after heavy rainfall): 0.2 foot

Frequency and most likely period of ponding: Frequent, November through June

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and low for concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2w

Prime farmland category: Prime farmland where drained

Hydric soil status: Hydric

Starks Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs

Taxadjunct features: The Starks soils in this survey area have brighter colors in the upper part of the subsoil than is defined as the range for the series. This difference, however, does not significantly affect the use, management, or interpretations of the soils. These soils are classified as fine-silty, mixed, superactive, mesic Aquic Hapludalfs.

Typical Pedon

Starks silt loam, 0 to 2 percent slopes, at an elevation of 656 feet above mean sea level; Coles County, Illinois; about 1½ miles west of Etna; 600 feet east and 1,300 feet north of the southwest corner of sec. 17, T. 11 N., R. 7 E.; USGS Mattoon West, Illinois, topographic quadrangle; lat. 39 degrees 23 minutes 30.1 seconds N. and long. 88 degrees 27 minutes 03.7 seconds W.; UTM Zone 16S, Easting 0375046, Northing 4361249; NAD 83:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate very fine granular structure; friable; slightly acid; abrupt smooth boundary.

E—8 to 13 inches; brown (10YR 5/3) silt loam; moderate thin platy structure parting to moderate very fine granular; friable; common distinct light brownish gray (10YR 6/2) and light gray (10YR 7/2) silt coatings on faces of peds; few fine faint dark yellowish brown (10YR 4/4) masses of oxidized iron-manganese in the matrix; moderately acid; clear smooth boundary.

Bt1—13 to 21 inches; yellowish brown (10YR 5/4) silty clay loam; weak fine prismatic structure parting to moderate fine and medium subangular blocky; firm; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common distinct light gray (10YR 7/2) (dry) silt coatings on faces of peds; common fine prominent yellowish brown (10YR 5/8) masses of oxidized iron and few fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; few fine spherical dark masses of iron-manganese in the matrix; moderately acid; clear smooth boundary.

Bt2—21 to 26 inches; brown (10YR 5/3) silty clay loam; moderate fine subangular blocky structure; firm; common distinct grayish brown (10YR 5/2) clay films on faces of peds; common distinct gray (10YR 6/1) silt coatings on faces of peds; many fine prominent yellowish brown (10YR 5/8) masses of oxidized iron and common fine faint light brownish gray (10YR 6/2) iron depletions in the matrix; few fine spherical dark masses of iron-manganese in the matrix; moderately acid; clear smooth boundary.

Btg1—26 to 36 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure; firm; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; very few distinct gray (10YR 6/1) silt coatings on

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faces of peds; many medium prominent yellowish brown (10YR 5/8) masses of oxidized iron in the matrix; few fine spherical dark masses of iron-manganese in the matrix; moderately acid; clear smooth boundary.

2Btg2—36 to 44 inches; grayish brown (10YR 5/2) sandy loam; moderate coarse subangular blocky structure; firm; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium distinct dark brown (7.5YR 4/4) masses of oxidized iron-manganese in the matrix; few fine spherical dark masses of oxidized iron-manganese in the matrix; 3 percent gravel; moderately acid; clear smooth boundary.

2C—44 to 60 inches; dark yellowish brown (10YR 4/4) sandy loam; massive; firm; common spherical dark masses of oxidized iron-manganese in the matrix; neutral.

Range in Characteristics

Thickness of the loess: 24 to 40 inches

Depth to carbonates: 40 to 70 inches

Depth to the base of the argillic horizon: More than 35 inches

A horizon:

Hue—10YR

Value—4 or 5

Chroma—1 to 3

Texture—silt loam

Content of rock fragments—none

Reaction—strongly acid to neutral

E horizon (where present):

Hue—10YR

Value—5 or 6

Chroma—2 or 3

Texture—silt loam

Content of rock fragments—none

Reaction—strongly acid to neutral

Bt or Btg horizon:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—1 to 4

Texture—silty clay loam or silt loam

Content of rock fragments—none

Reaction—very strongly acid to slightly acid

2Bt, 2Btg, 2BC, or 2BCg horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—1 to 6

Texture—clay loam, loam, or sandy loam

Content of rock fragments—0 to 5 percent

Reaction—strongly acid to slightly alkaline

2C or 2Cg horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—1 to 6

Texture—stratified sandy loam, loam, silt loam, and clay loam

Content of rock fragments—0 to 15 percent

Reaction—strongly acid to slightly alkaline

132A—Starks silt loam, 0 to 2 percent slopes

Setting

Landform: Stream terraces, outwash plains

Position on the landform: Summits, footslopes

Map Unit Composition

Starks and similar soils: 95 percent

Dissimilar soils: 5 percent

Components of Minor Extent

Similar soils:

- Soils that have more sand in the substratum
- Soils that are subject to very rare flooding
- Moderately well drained soils on slight rises; in landscape positions above those of the Starks soil
- Soils that have a moderately dark surface layer between 7 and 10 inches thick

Dissimilar soils:

- The poorly drained Drummer soils in swales; in landscape positions below those of the Starks soil
- The poorly drained Brooklyn soils on toeslopes; in landscape positions below those of the Starks soil
- The well drained Camden and Penfield soils on rises; in landscape positions above those of the Starks soil
- The poorly drained Sawmill and somewhat poorly drained Lawson soils on flood plains

Properties and Qualities of the Starks Soil

Parent material: Loess over stratified loamy outwash

Drainage class: Somewhat poorly drained

Slowest permeability within a depth of 40 inches: Moderately slow

Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 9.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.5 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: 1 foot, January through May

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 1

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Sunbury Series

Taxonomic classification: Fine, smectitic, mesic Aquollic Hapludalfs

Typical Pedon

Sunbury silt loam, 0 to 2 percent slopes, at an elevation of about 680 feet above mean sea level; Douglas County, Illinois; about 1,270 feet north and 1,410 feet east of the southwest corner of sec. 19, T. 16 N., R. 7 E.; USGS Atwood, Illinois, topographic quadrangle; lat. 39 degrees 49 minutes 27.5 seconds N. and long. 88 degrees 27 minutes 25.8 seconds W.; UTM Zone 16S, Easting 0375296, Northing 4409272; NAD 83:

- Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; common very fine roots throughout; slightly acid; clear smooth boundary.
- E—8 to 12 inches; brown (10YR 5/3) silt loam; moderate thin and medium platy structure parting to moderate fine granular; friable; common very fine roots throughout; moderately acid; clear smooth boundary.
- BE—12 to 15 inches; brown (10YR 4/3) silty clay loam; moderate fine subangular blocky structure; firm; common very fine and fine roots throughout; many distinct light gray (10YR 7/2) (dry) clay depletions on faces of peds; moderately acid; clear smooth boundary.
- Bt1—15 to 25 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; common very fine and fine roots between peds; many distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few medium distinct irregular black (7.5YR 2.5/1) weakly cemented iron-manganese nodules throughout; common fine faint dark grayish brown (10YR 4/2) iron depletions in the matrix; few fine distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; moderately acid; clear smooth boundary.
- Bt2—25 to 36 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure parting to moderate medium and coarse subangular blocky; firm; common fine roots between peds; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; few medium prominent irregular black (7.5YR 2.5/1) weakly cemented iron-manganese nodules throughout; few medium distinct dark gray (10YR 4/1) iron depletions in the matrix; common medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; slightly acid; clear smooth boundary.
- Bt3—36 to 43 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to weak coarse subangular blocky; friable; few very fine and fine roots between peds; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common distinct very dark gray (10YR 3/1) organo-clay films on faces of peds and in pores; common medium distinct spherical and irregular black (7.5YR 2.5/1) iron-manganese nodules throughout; common medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; many medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; slightly alkaline; clear smooth boundary.
- 2Btg—43 to 47 inches; grayish brown (10YR 5/2) loam; weak coarse subangular blocky structure; firm; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few distinct very dark gray (10YR 3/1) organo-clay films on faces of peds and in pores; few fine and medium distinct irregular black (7.5YR 2.5/1) weakly cemented iron-manganese nodules throughout; many medium prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; 1 percent fine gravel; slightly alkaline; abrupt smooth boundary.

2C—47 to 72 inches; 50 percent grayish brown (10YR 5/2) and 50 percent yellowish brown (10YR 5/6) loam; massive; firm; common fine and medium prominent spherical white (10YR 8/1) weakly cemented calcium carbonate nodules throughout; few fine and medium distinct irregular black (7.5YR 2.5/1) weakly cemented iron-manganese nodules throughout; 3 percent fine gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic layer: 7 to 9 inches

Thickness of the loess: 40 to 60 inches

Depth to carbonates: 45 to 60 inches

Depth to the base of the argillic horizon: 45 to 65 inches

Ap or A horizon:

Hue—10YR or 2.5Y

Value—2 to 3

Chroma—1 or 2

Texture—silt loam

Content of rock fragments—none

Reaction—moderately acid to neutral

E horizon:

Hue—10YR

Value—3 to 5

Chroma—2 or 3

Texture—silt loam

Content of rock fragments—none

Reaction—moderately acid to neutral

BE horizon:

Hue—10YR

Value—4 or 5

Chroma—3 or 4

Texture—silt loam or silty clay loam

Content of rock fragments—none

Reaction—moderately acid or slightly acid

Bt horizon:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—2 to 4

Texture—silty clay loam or silty clay

Content of rock fragments—none

Reaction—moderately acid to slightly alkaline

2Btg or 2Bt horizon:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—2 to 6

Texture—loam, clay loam, or silt loam

Content of rock fragments—0 to 5 percent

Reaction—slightly acid to slightly alkaline

2C horizon:

Hue—10YR or 2.5Y

Value—5 or 6

Chroma—1 to 8

Texture—loam

Content of rock fragments—0 to 5 percent

Reaction—slightly alkaline or moderately alkaline

234A—Sunbury silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines

Position on the landform: Summits, footslopes

Map Unit Composition

Sunbury and similar soils: 94 percent

Dissimilar soils: 6 percent

Components of Minor Extent

Similar soils:

- Soils that have a thicker dark surface layer
- Soils that have less clay in the subsoil
- Soils that have a water table at a depth of 2.0 to 3.5 feet
- Soils that have a substratum of sandy loam

Dissimilar soils:

- The poorly drained Drummer soils in swales

Properties and Qualities of the Sunbury Soil

Parent material: Loess over till

Drainage class: Somewhat poorly drained

Slowest permeability within a depth of 40 inches: Moderately slow

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 10.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2 to 4 percent

Shrink-swell potential: High

Depth and months of highest apparent seasonal high water table: 1 foot, January through May

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 1

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Tama Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Argiudolls

Typical Pedon

Tama silt loam, very deep to sand, 2 to 5 percent slopes, on a slope of 3 percent at an elevation of 600 feet above mean sea level; Logan County, Illinois; 220 feet south and 540 feet east of the northwest corner of sec. 16, T. 19 N., R. 3 W.; USGS Broadwell, Illinois, topographic quadrangle; lat. 40 degrees 06 minutes 23 seconds N. and long. 89 degrees 26 minutes 27.4 seconds W.; UTM Zone 16T, Easting 0291955, Northing 4442422; NAD 83:

- Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many fine roots; neutral; abrupt smooth boundary.
- A—7 to 16 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure; friable; many fine roots; neutral; clear smooth boundary.
- Bt1—16 to 21 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; many fine roots; common distinct very dark gray (10YR 3/1) organic coatings on horizontal faces of peds; few faint brown (10YR 4/3) clay films on faces of peds; slightly acid; clear smooth boundary.
- Bt2—21 to 26 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; common faint brown (10YR 4/3) clay films on faces of peds; slightly acid; clear smooth boundary.
- Bt3—26 to 33 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; friable; few fine roots; few faint brown (10YR 4/3) clay films on faces of peds; slightly acid; clear smooth boundary.
- Bt4—33 to 57 inches; yellowish brown (10YR 5/4) silt loam; moderate medium and coarse subangular blocky structure; friable; few faint brown (10YR 4/3) clay films on faces of peds; slightly acid; clear smooth boundary.
- BC—57 to 70 inches; yellowish brown (10YR 5/4) silt loam; weak coarse subangular blocky structure; friable; few fine irregular faint pale brown (10YR 6/3) iron depletions lining pores; slightly acid; abrupt smooth boundary.
- 2C—70 to 80 inches; yellowish brown (10YR 5/6) loamy fine sand; single grain; loose; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches

Thickness of the loess: More than 60 inches

Depth to carbonates: More than 48 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 or 2

Texture—silt loam

Content of rock fragments—none

Reaction—strongly acid to neutral

BA horizon (where present):

Hue—10YR

Value—3 or 4

Chroma—2 or 3

Texture—silt loam or silty clay loam

Content of rock fragments—none

Reaction—strongly acid to slightly acid

Bt horizon:

Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—strongly acid to slightly acid

BC or C horizon:

Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

2BCt or 2BC horizon (where present):

Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 6
Texture—loam, fine sandy loam, clay loam, or sandy clay loam
Content of rock fragments—0 to 5 percent
Reaction—moderately acid to slightly alkaline

2C horizon:

Hue—7.5YR, 10YR, or 2.5Y
Value—3 to 5
Chroma—2 to 6
Texture—loamy fine sand, fine sand, or loamy sand; stratified in some pedons
Content of rock fragments—0 to 14 percent
Reaction—moderately acid to slightly alkaline

737B—Tama silt loam, very deep to sand, 2 to 5 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Backslopes, summits, shoulders

Map Unit Composition

Tama and similar soils: 90 percent

Dissimilar soils: 10 percent

Components of Minor Extent

Similar soils:

- Moderately well drained soils in landscape positions similar to those of the Tama soil
- Soils that are eroded
- Soils that have slopes of less than 2 percent
- Soils that have slopes of more than 5 percent
- Soils that have more clay in the subsoil

Dissimilar soils:

- The somewhat poorly drained Elburn soils in swales; in landscape positions below those of the Tama soil
- The poorly drained Sable soils in swales

Properties and Qualities of the Tama Soil

Parent material: Very deep loess over sandy outwash

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate to rapid

Depth to restrictive feature: 60 to 80 inches to strongly contrasting textural stratification

Available water capacity: About 10.8 inches to a depth of 60 inches

Content of organic matter in the surface layer: 3 to 4 percent

Shrink-swell potential: Moderate

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: Moderate for steel and concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Thorp Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Argiaquic Argialbolls

Typical Pedon

Thorp silt loam, 0 to 2 percent slopes, at an elevation of 640 feet above mean sea level; La Salle County, Illinois; about 9 miles east of Baker; 990 feet north and 2,240 feet west of the southeast corner of sec. 27, T. 36 N., R. 5 E.; USGS Sheridan, Illinois, topographic quadrangle; lat. 41 degrees 33 minutes 40.5 seconds N. and long. 88 degrees 38 minutes 46.7 seconds W.; UTM Zone 16T, Easting 0362722, Northing 4602372; NAD 83:

Ap—0 to 7 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate very fine granular structure; friable; neutral; abrupt smooth boundary.

A—7 to 14 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate fine granular structure; friable; slightly acid; abrupt smooth boundary.

Eg—14 to 19 inches; dark gray (10YR 4/1) silt loam, gray (10YR 6/1) dry; weak fine granular structure; friable; few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; moderately acid; clear smooth boundary.

Btg1—19 to 21 inches; dark gray (10YR 4/1) and dark grayish brown (2.5Y 4/2) silty clay loam; weak fine prismatic structure parting to moderate fine subangular blocky; firm; many distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; moderately acid; clear smooth boundary.

Btg2—21 to 33 inches; gray (5Y 5/1) and olive gray (5Y 4/2) silty clay loam; moderate medium prismatic structure parting to moderate fine and medium subangular blocky; firm; many prominent very dark gray (10YR 3/1) organo-clay films on faces of peds; many fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; moderately acid; clear smooth boundary.

Btg3—33 to 43 inches; grayish brown (2.5Y 5/2) silty clay loam; weak fine prismatic structure parting to moderate fine angular and subangular blocky; firm; many

distinct very dark gray (10YR 3/1) organo-clay films and dark gray (N 4/) clay films on faces of peds; common fine prominent yellowish brown (10YR 5/6) and distinct light yellowish brown (2.5Y 6/4) masses of oxidized iron in the matrix; slightly acid; clear smooth boundary.

2Btg4—43 to 50 inches; grayish brown (10YR 5/2) and yellowish brown (10YR 5/6) sandy clay loam; weak coarse subangular blocky structure; friable; few distinct dark grayish brown (2.5Y 4/2) clay films on faces of peds; neutral; clear smooth boundary.

2Cg—50 to 65 inches; mixed grayish brown (10YR 5/2) and yellowish brown (10YR 5/8) sandy loam with thin strata of sand; friable in the sandy loam; loose in the sand; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 14 inches

Thickness of the loess: 30 to 54 inches

Depth to carbonates: More than 40 inches

Depth to the base of the argillic horizon: 40 to 65 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 to 3

Texture—silt loam

Content of rock fragments—none

Reaction—strongly acid to slightly alkaline

Eg horizon:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—1 or 2

Texture—silt loam

Content of rock fragments—none

Reaction—strongly acid to neutral

Btg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 or 2

Texture—silty clay loam or silt loam

Content of rock fragments—none

Reaction—strongly acid to neutral

2Btg horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—4 to 6

Chroma—0 to 8

Texture—sandy clay loam, sandy loam, clay loam, loam, silt loam, or silty clay loam

Content of rock fragments—0 to 10 percent

Reaction—moderately acid to slightly alkaline

2Cg horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—4 to 6

Chroma—0 to 8

Texture—stratified sandy loam, sandy clay loam, clay loam, loam, silt loam, and silty clay loam

Content of rock fragments—0 to 15 percent

Reaction—slightly acid to moderately alkaline

206A—Thorp silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains, ground moraines

Position on the landform: Toeslopes

Map Unit Composition

Thorp and similar soils: 95 percent

Dissimilar soils: 5 percent

Components of Minor Extent

Similar soils:

- Somewhat poorly drained soils in landscape positions above those of the Thorp soil
- Soils that are subject to very rare flooding
- Poorly drained soils on flood plains

Dissimilar soils:

- The well drained Plano and somewhat poorly drained Elburn soils that are subject to rare flooding

Properties and Qualities of the Thorp Soil

Parent material: Loess over stratified loamy outwash

Drainage class: Poorly drained

Slowest permeability within a depth of 40 inches: Slow

Permeability below a depth of 60 inches: Moderate or moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 9.4 inches to a depth of 60 inches

Content of organic matter in the surface layer: 4 to 6 percent

Shrink-swell potential: Moderate

Depth and months of highest apparent seasonal high water table: At the surface,
January through December

Ponding (average depth during the wettest periods or after heavy rainfall): 0.2 foot,
January through May

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2w

Prime farmland category: Prime farmland where drained

Hydric soil status: Hydric

Tice Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Fluvaquentic Hapludolls

Typical Pedon

Tice silty clay loam, 0 to 2 percent slopes, frequently flooded, at an elevation of about 575 feet above mean sea level; Macon County, Illinois; about 325 feet south and 960 feet east of the center of sec. 22, T. 16 N., R. 1 W.; USGS Niantic, Illinois, topographic quadrangle; lat. 39 degrees 49 minutes 18.2 seconds N. and long. 89 degrees 11 minutes 09.3 seconds W.; UTM Zone 16S, Easting 0312918, Northing 4410255; NAD 83:

- Ap—0 to 6 inches; very dark gray (10YR 3/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine granular and moderate medium angular blocky structure; friable; slightly acid; abrupt smooth boundary.
- A—6 to 21 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; moderate fine subangular blocky structure; friable; neutral; clear smooth boundary.
- Bt1—21 to 34 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; many faint dark grayish brown (10YR 4/2) clay films on faces of peds; few fine prominent strong brown (7.5YR 5/8) masses of oxidized iron in the matrix; neutral; clear smooth boundary.
- Bt2—34 to 46 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine and medium prismatic structure parting to moderate medium subangular blocky; firm; many distinct dark gray (10YR 4/1) clay films on faces of peds; many fine prominent strong brown (7.5YR 5/8 and 4/6) masses of oxidized iron in the matrix; neutral; clear smooth boundary.
- Bt3—46 to 58 inches; dark grayish brown (10YR 4/2) silty clay loam; weak medium prismatic structure; firm; common distinct dark gray (10YR 4/1) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; common fine faint spherical black (7.5YR 2.5/1) very weakly cemented manganese nodules throughout; neutral; clear smooth boundary.
- Btg—58 to 66 inches; grayish brown (10YR 5/2) silty clay loam; weak coarse prismatic structure; firm; few faint gray (10YR 5/1) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; common fine distinct spherical black (7.5YR 2.5/1) very weakly cemented manganese nodules throughout; neutral; gradual wavy boundary.
- BCtg—66 to 80 inches; 70 percent grayish brown (2.5Y 5/2) and 30 percent light olive brown (2.5Y 5/3) silt loam; massive; very friable; few distinct dark grayish brown (10YR 4/2) clay films lining pores; common fine tubular pores; many medium faint light brownish gray (10YR 6/2) iron depletions, many medium prominent yellowish brown (10YR 5/8) masses of oxidized iron in the matrix, and few medium distinct spherical black (2.5Y 2.5/1) very weakly cemented manganese nodules in the matrix; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches

Depth to carbonates: More than 60 inches

Depth to the base of the cambic horizon: 30 to more than 80 inches

Ap or A horizon:

Hue—10YR
Value—2 to 3
Chroma—1 to 3
Texture—silty clay loam
Content of rock fragments—none
Reaction—slightly acid or neutral

Bt or Btg horizon:

Hue—10YR or 2.5Y
Value—4 or 5
Chroma—1 to 4
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—moderately acid to neutral

BCg, BCtg, or Cg horizon:

Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 3
Texture—silty clay loam or silt loam; thin layers of clay loam, loam, or sandy loam
in some pedons
Content of rock fragments—none
Reaction—neutral or slightly alkaline

**3284A—Tice silty clay loam, 0 to 2 percent slopes,
frequently flooded**

Setting

Landform: Flood plains

Map Unit Composition

Tice and similar soils: 87 percent
Dissimilar soils: 13 percent

Components of Minor Extent

Similar soils:

- Soils that are subject to occasional flooding
- Soils that have a light-colored surface layer
- Soils that have a browner subsoil

Dissimilar soils:

- Soils that are subject to rare flooding
- The well drained Huntsville and Ross soils on flood-plain steps; in landscape positions above those of the Tice soil
- The poorly drained and very poorly drained Sawmill soils in swales and backswamps

Properties and Qualities of the Tice Soil

Parent material: Silty alluvium

Drainage class: Somewhat poorly drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2 to 4 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: 1 foot, January through May
Ponding: None
Frequency and most likely period of flooding: Frequent, November through June
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3w
Prime farmland category: Prime farmland where protected from flooding or not frequently flooded during the growing season
Hydric soil status: Not hydric

533—Urban land

This map unit occurs as areas covered by pavement and buildings. Because of extensive land smoothing, the areas are generally nearly level and gently sloping. Most of the paved areas are parking lots adjacent to shopping centers, industrial plants, and other commercial buildings.

Wabash Series

Taxonomic classification: Fine, smectitic, mesic Cumulic Vertic Endoaquolls

Typical Pedon

Wabash silty clay, 0 to 2 percent slopes, frequently flooded, at an elevation of 604 feet above mean sea level; Macon County, Illinois; 75 feet east and 120 feet south of the northwest corner of sec. 23, T. 16 N., R. 1 W.; USGS Latham, Illinois, topographic quadrangle; lat. 39 degrees 55 minutes 01 second N. and long. 89 degrees 10 minutes 49.2 seconds W.; UTM Zone 16S, Easting 0313655, Northing 4420813; NAD 83:

- Ap—0 to 4 inches; black (10YR 2/1) silty clay, dark gray (10YR 4/1) dry; moderate fine and very fine granular structure; friable; neutral; clear smooth boundary.
- A1—4 to 10 inches; black (10YR 2/1) silty clay, dark gray (10YR 4/1) dry; moderate medium subangular blocky structure; firm; few faint very dark brown (10YR 2/2) organic coatings lining pores; few fine faint dark gray (10YR 4/1) iron depletions in the matrix; neutral; clear smooth boundary.
- A2—10 to 16 inches; black (N 2.5/) silty clay, dark gray (10YR 4/1) dry; moderate very fine prismatic structure parting to moderate fine and very fine subangular and angular blocky; firm; few faint very dark brown (10YR 2/2) organic coatings on faces of peds; few fine prominent dark gray (10YR 4/1) iron depletions in the matrix; few pebbles; neutral; clear smooth boundary.

- Bg1—16 to 33 inches; black (5Y 2.5/1) silty clay, dark gray (10YR 4/1) dry; moderate fine prismatic structure parting to moderate fine and medium subangular and angular blocky; firm; common faint very dark gray (N 3/) organic coatings on faces of peds; few fine distinct dark grayish brown (10YR 4/2) iron depletions in the matrix; slightly alkaline; clear smooth boundary.
- Bg2—33 to 54 inches; black (5Y 2.5/1) silty clay, gray (10YR 6/1) dry; moderate fine and medium prismatic structure; very firm; common fine prominent dark yellowish brown (10YR 4/4) masses of oxidized iron-manganese throughout; few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; common fine irregular iron-manganese concretions throughout; common pebbles; slightly alkaline; clear smooth boundary.
- Cg—54 to 60 inches; dark gray (5Y 4/1) silty clay; massive; very firm; common fine distinct grayish brown (2.5Y 5/2) iron depletions; common fine prominent strong brown (7.5YR 4/6) masses of oxidized iron-manganese in the matrix; common fine irregular masses of oxidized iron-manganese in the matrix; common pebbles; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: More than 36 inches

Depth to carbonates: More than 40 inches

Depth to the base of the cambic horizon: More than 22 inches

Ap or A horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—2 to 3

Chroma—0 to 2

Texture—silty clay

Content of rock fragments—0 to 5 percent

Reaction—moderately acid to neutral

A horizon (below the surface):

Hue—10YR, 2.5Y, 5Y, or N

Value—2 to 3

Chroma—0 to 2

Texture—silty clay with thin subhorizons of silty clay loam

Content of rock fragments—0 to 5 percent

Reaction—moderately acid to neutral

Bg horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—2 to 5

Chroma—0 to 2

Texture—silty clay

Content of rock fragments—0 to 5 percent

Reaction—moderately acid to slightly alkaline

C horizon:

Hue—10YR, 2.5Y, 5Y, or N

Value—2 to 5

Chroma—0 to 2

Texture—silty clay

Content of rock fragments—0 to 5 percent

Reaction—strongly acid to slightly alkaline

1083A—Wabash silty clay, undrained, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Wabash and similar soils: 95 percent

Dissimilar soils: 5 percent

Components of Minor Extent

Similar soils:

- Soils that are subject to occasional flooding
- Soils that have a thinner dark surface layer
- Soils that have less clay in the surface layer
- Soils that have less clay in the subsoil
- Poorly drained soils in positions on flood plains similar to those of the Wabash soil

Dissimilar soils:

- Soils that have more sand in the subsoil than the Wabash soil
- The rarely flooded Elburn and Plano soils on rises; in landscape positions above those of the Wabash soil

Properties and Qualities of the Wabash Soil

Parent material: Clayey alluvium

Drainage class: Very poorly drained

Slowest permeability within a depth of 40 inches: Very slow

Permeability below a depth of 60 inches: Very slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 7.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 3.5 to 6.5 percent

Shrink-swell potential: High

Depth and months of highest apparent seasonal high water table: At the surface all year

Ponding (average depth during the wettest periods or after heavy rainfall): 0.5 foot

Frequency and most likely period of ponding: Frequent, November through June

Frequency and most likely period of flooding: Frequent, November through June

Potential for frost action: High

Hazard of corrosion: Moderate for steel and low for concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 5w

Prime farmland category: Not prime farmland

Hydric soil status: Hydric

3083A—Wabash silty clay, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Wabash and similar soils: 95 percent

Dissimilar soils: 5 percent

Components of Minor Extent

Similar soils:

- Soils that are subject to occasional flooding
- Soils that have a thinner dark surface layer
- Soils that have less clay in the subsoil
- Poorly drained soils in positions on flood plains similar to those of the Wabash soil
- Soils that have a surface layer of silt loam

Dissimilar soils:

- Soils that have more sand in the subsoil than the Wabash soil
- The rarely flooded Elburn and Plano soils on rises; in landscape positions above those of the Wabash soil
- The very poorly drained Sawmill soils in backswamps

Properties and Qualities of the Wabash Soil

Parent material: Clayey alluvium

Drainage class: Very poorly drained

Slowest permeability within a depth of 40 inches: Very slow

Permeability below a depth of 60 inches: Very slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 7.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 3.5 to 6.5 percent

Shrink-swell potential: High

Depth and months of highest apparent seasonal high water table: At the surface,
January through June

Ponding (average depth during the wettest periods or after heavy rainfall): 0.5 foot

Frequency and most likely period of ponding: Frequent, November through June

Frequency and most likely period of flooding: Frequent, November through June

Potential for frost action: High

Hazard of corrosion: High for steel and low for concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderate

Interpretive Groups

Land capability classification: 3w

Prime farmland category: Prime farmland where drained and either protected from
flooding or not frequently flooded during the growing season

Hydric soil status: Hydric

Wakeland Series

Taxonomic classification: Coarse-silty, mixed, superactive, nonacid, mesic Aeric Fluvaquents

Typical Pedon

Wakeland silt loam, 0 to 2 percent slopes, frequently flooded, at an elevation of 475 feet above mean sea level; Jasper County, Illinois; 1,188 feet south and 2,500 feet west of the northeast corner of sec. 15, T. 7 N., R. 14 W.; USGS Oblong North, Illinois, topographic quadrangle; lat. 39 degrees 03 minutes 01 second N. and long. 87 degrees 57 minutes 19.7 seconds W.; UTM Zone 16S, Easting 0417321, Northing 4322790; NAD 83:

- Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; very friable; common fine and very fine roots; slightly acid; abrupt smooth boundary.
- Cg—9 to 22 inches; grayish brown (10YR 5/2) silt loam; weak fine granular structure; very friable; common very fine roots; few distinct dark yellowish brown (10YR 4/4) organic coatings on faces of peds; many medium faint brown (10YR 5/3) and common medium distinct yellowish brown (10YR 5/4) masses of oxidized iron-manganese and few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; slightly acid; clear smooth boundary.
- C—22 to 44 inches; brown (10YR 5/3) silt loam; weak fine granular structure; very friable; common very fine roots; many coarse faint grayish brown (10YR 5/2) iron depletions and few fine distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; moderately acid; clear smooth boundary.
- C'g—44 to 60 inches; grayish brown (10YR 5/2) silt loam; massive; friable; few very fine roots; many medium faint brown (10YR 5/3) masses of oxidized iron-manganese and common fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; moderately acid.

Range in Characteristics

Ap or A horizon:

Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam
Content of rock fragments—none
Reaction—moderately acid to neutral

C or Cg horizon:

Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 7
Chroma—1 to 6
Texture—silt loam; thin strata of coarser textures in some pedons
Content of rock fragments—none
Reaction—moderately acid to slightly alkaline

3333A—Wakeland silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood-plain steps

Map Unit Composition

Wakeland and similar soils: 90 percent

Dissimilar soils: 10 percent

Components of Minor Extent

Similar soils:

- Soils that have more sand in the substratum
- Soils that are subject to occasional flooding
- Soils that have a dark surface layer
- Soils that have more clay in the subsoil

Dissimilar soils:

- The well drained Huntsville soils on rises; in landscape positions above those of the Wakeland soil
- The well drained Senachwine soils on side slopes; in landscape positions above those of the Wakeland soil
- The poorly drained and very poorly drained Sawmill soils in swales and backswamps

Properties and Qualities of the Wakeland Soil

Parent material: Silty alluvium

Drainage class: Somewhat poorly drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 13.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1 to 3 percent

Shrink-swell potential: Low

Depth and months of highest apparent seasonal high water table: 0.5 foot, January through May

Ponding: None

Frequency and most likely period of flooding: Frequent, November through June

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3w

Prime farmland category: Prime farmland where drained and either protected from flooding or not frequently flooded during the growing season

Hydric soil status: Not hydric

W—Water

This map unit includes streams, lakes, ponds, and estuaries. Areas of this unit are covered with water in most years, at least during the period that is warm enough for the growth of plants. Many areas are covered throughout the year. Gravel pits and other areas not mapped as Miscellaneous water are mapped as Water if they contain water most of the time.

Wingate Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Mollic Oxyaquic
Hapludalfs

Typical Pedon

Wingate silt loam, 2 to 5 percent slopes, on a slope of 2 percent at an elevation of 659 feet above mean sea level; Edgar County, Illinois; 985 feet north and 1,455 feet east of the southwest corner of sec. 25, T. 15 N., R. 12 W.; USGS Paris North, Illinois, topographic quadrangle; lat. 39 degrees 43 minutes 23.1 seconds N. and long. 87 degrees 42 minutes 07.1 seconds W.; UTM Zone 16S, Easting 0439838, Northing 4397259; NAD 83:

- Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure parting to moderate fine granular; friable; many very fine roots; neutral; abrupt smooth boundary.
- E—9 to 12 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium platy structure; friable; common very fine roots; neutral; abrupt smooth boundary.
- Bt1—12 to 22 inches; yellowish brown (10YR 5/6) silty clay loam; moderate fine and medium subangular blocky structure; firm; few very fine roots; many distinct brown (10YR 4/3) clay films on faces of peds; moderately acid; clear smooth boundary.
- Bt2—22 to 27 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium angular blocky structure; firm; few very fine roots; common distinct brown (10YR 4/3) clay films on faces of peds; moderately acid; clear smooth boundary.
- 2Bt3—27 to 36 inches; yellowish brown (10YR 5/6) clay loam; moderate coarse subangular blocky structure; firm; few very fine roots; common distinct brown (10YR 4/3) clay films on faces of peds; few distinct black (10YR 2/1) iron-manganese coatings on faces of peds; common fine and medium prominent irregular black (10YR 2/1) weakly cemented iron-manganese nodules throughout; few fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; about 2 percent fine gravel; moderately acid; clear smooth boundary.
- 2Bt4—36 to 52 inches; yellowish brown (10YR 5/4) clay loam; weak coarse subangular blocky structure; firm; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine distinct spherical black (10YR 2/1) weakly cemented iron-manganese nodules throughout; about 5 percent fine gravel; neutral; gradual smooth boundary.
- 2C—52 to 60 inches; yellowish brown (10YR 5/4) loam; massive; firm; few fine distinct spherical black (10YR 2/1) weakly cemented iron-manganese nodules throughout; about 5 percent fine gravel; slightly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the mollic layer: 7 to 9 inches

Thickness of the loess: 20 to 40 inches

Depth to carbonates: 29 to 65 inches

Depth to the base of the argillic horizon: 29 to 55 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 to 3

Texture—silt loam

Content of rock fragments—none

Reaction—moderately acid to neutral

E horizon (where present):

Hue—10YR
Value—4 or 5
Chroma—3
Texture—silt loam
Content of rock fragments—none
Reaction—moderately acid to neutral

Bt horizon:

Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

2Bt, 2BCt, or 2BC horizon:

Hue—10YR or 7.5YR
Value—5 or 6
Chroma—2 to 6
Texture—clay loam or loam
Content of rock fragments—1 to 7 percent
Reaction—moderately acid to slightly alkaline

2C horizon:

Hue—10YR or 7.5YR
Value—4 or 5
Chroma—2 to 6
Texture—loam
Content of rock fragments—1 to 10 percent
Reaction—slightly alkaline or moderately alkaline

348B—Wingate silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines

Position on the landform: Summits, shoulders

Map Unit Composition

Wingate and similar soils: 90 percent

Dissimilar soils: 10 percent

Components of Minor Extent

Similar soils:

- Soils that are moderately eroded
- Soils that have more gray in the subsoil
- Well drained soils on slopes; in landscape positions below those of the Wingate soil
- Soils that have more sand in the subsoil

Dissimilar soils:

- Soils that are severely eroded
- The somewhat poorly drained Flanagan soils in landscape positions above those of the Wingate soil
- The poorly drained Drummer soils in swales

Properties and Qualities of the Wingate Soil

Parent material: Loess over till

Drainage class: Moderately well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 9.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2 to 4 percent

Shrink-swell potential: Moderate

Depth and months of highest perched seasonal high water table: 1.5 feet, February through April

Ponding: None

Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Wyanet Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Argiudolls

Taxadjunct features: The Wyanet soils in this survey area have a thinner dark surface layer than is defined as the range for the series. This difference, however, does not significantly affect the use, management, or interpretations of the soils. These soils are classified as fine-loamy, mixed, active, mesic Mollic Hapludalfs.

Typical Pedon

Wyanet silt loam, 5 to 10 percent slopes, eroded, on a slope of 9 percent at an elevation of 704 feet above mean sea level; Bureau County, Illinois; 276 feet south and 2,146 feet east of the northwest corner of sec. 11, T. 16 N., R. 7 E.; USGS Manlius, Illinois, topographic quadrangle; lat. 41 degrees 23 minutes 36.6 seconds N. and long. 89 degrees 39 minutes 27.8 seconds W.; UTM Zone 16T, Easting 0277806, Northing 4585848; NAD 83:

Ap—0 to 8 inches; mixed very dark grayish brown (10YR 3/2) and dark yellowish brown (10YR 4/4) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium granular structure; friable; many fine roots; slightly acid; abrupt smooth boundary.

Bt1—8 to 16 inches; dark yellowish brown (10YR 4/4) clay loam; moderate fine subangular blocky structure; friable; common fine roots; many distinct brown (10YR 4/3) clay films and few distinct dark brown (10YR 3/3) organic coatings on faces of peds; 1 percent gravel; slightly acid; clear smooth boundary.

Bt2—16 to 26 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; friable; common fine roots; many distinct brown (7.5YR 4/4) clay films on faces of peds; 1 percent gravel; neutral; clear smooth boundary.

BCt—26 to 34 inches; brown (7.5YR 5/4) loam; weak medium subangular blocky structure; friable; few fine roots; few distinct brown (7.5YR 4/4) clay films on faces of peds; 1 percent gravel; slightly effervescent; slightly alkaline; gradual smooth boundary.

C—34 to 60 inches; brown (7.5YR 5/4) loam; massive; friable; few fine roots; 1 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic layer: 7 to 9 inches

Thickness of the loess: 0 to 18 inches

Depth to carbonates: 20 to 40 inches

Depth to the base of the argillic horizon: 24 to 40 inches

Ap or A horizon:

Hue—10YR

Value—2 to 3

Chroma—1 to 3

Texture—silt loam

Content of rock fragments—0 to 6 percent

Reaction—moderately acid to neutral

Bt or 2Bt horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 or 5

Chroma—4 to 6

Texture—silty clay loam, clay loam, or loam

Content of rock fragments—0 to 10 percent

Reaction—moderately acid to neutral

BCt or 2BCt horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 7

Chroma—3 or 4

Texture—loam

Content of rock fragments—0 to 10 percent

Reaction—slightly alkaline or moderately alkaline

C or 2C horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 7

Chroma—3 or 4

Texture—loam

Content of rock fragments—0 to 10 percent

Reaction—slightly alkaline or moderately alkaline

622B2—Wyanet silt loam, 2 to 5 percent slopes, eroded

Setting

Landform: Ground moraines, end moraines

Position on the landform: Backslopes

Map Unit Composition

Wyanet and similar soils: 93 percent

Dissimilar soils: 7 percent

Components of Minor Extent

Similar soils:

- Soils that have a thinner dark surface layer
- Soils that have more than 18 inches of loess over the till
- Soils that are severely eroded

Dissimilar soils:

- Soils near streams that are subject to flooding
- Somewhat poorly drained soils in slight swales; in landscape positions below those of the Wyanet soil
- The poorly drained Drummer soils in swales

Properties and Qualities of the Wyanet Soil

Parent material: Till

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderately slow

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 7.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.5 to 3.5 percent

Shrink-swell potential: Moderate

Ponding: None

Flooding: None

Accelerated erosion: The surface layer has been thinned by erosion.

Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

622C2—Wyanet silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines, end moraines

Position on the landform: Backslopes

Map Unit Composition

Wyanet and similar soils: 93 percent

Dissimilar soils: 7 percent

Components of Minor Extent

Similar soils:

- Soils that have a thinner dark surface layer
- Soils that have more than 18 inches of loess over the till
- Soils that are severely eroded

Dissimilar soils:

- Soils near streams that are subject to flooding
- Somewhat poorly drained soils in slight swales; in landscape positions below those of the Wyanet soil
- The poorly drained Drummer soils in swales

Properties and Qualities of the Wyanet Soil

Parent material: Till

Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderately slow

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 7.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.5 to 3.5 percent

Shrink-swell potential: Moderate

Ponding: None

Flooding: None

Accelerated erosion: The surface layer has been thinned by erosion.

Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3e

Prime farmland category: Not prime farmland

Hydric soil status: Not hydric

Xenia Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Hapludalfs

Typical Pedon

Xenia silt loam, 2 to 5 percent slopes, on a slope of about 4 percent at an elevation of about 705 feet above mean sea level; Champaign County, Illinois; about 390 feet north and 860 feet west of the southeast corner of sec. 34, T. 20 N., R. 9 E.; USGS Thomasboro, Illinois, topographic quadrangle; lat. 40 degrees 08 minutes 35.6 seconds N. and long. 88 degrees 09 minutes 57.2 seconds W.; UTM Zone 16T, Easting 0400686, Northing 4444304; NAD 83:

A—0 to 4 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate very fine and fine granular structure; friable; neutral; abrupt smooth boundary.

E—4 to 10 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium platy structure; friable; many faint light brownish gray (10YR 6/2) (dry) silt coatings on faces of peds; moderately acid; clear smooth boundary.

BEt—10 to 16 inches; brown (10YR 4/3) silt loam; weak fine subangular blocky structure; friable; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common distinct light brownish gray (10YR 6/2) clay depletions on faces of peds; moderately acid; clear smooth boundary.

Bt1—16 to 23 inches; brown (10YR 4/3) silty clay loam; moderate fine and medium subangular blocky structure; friable; common distinct dark grayish brown (10YR

- 4/2) clay films on faces of peds; common distinct light brownish gray (10YR 6/2) (dry) silt coatings on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions in the matrix; moderately acid; clear smooth boundary.
- Bt2—23 to 37 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium and coarse subangular blocky structure; firm; common distinct dark brown (10YR 3/3) organo-clay films on faces of peds; many distinct grayish brown (10YR 5/2) (dry) silt coatings on faces of peds; few medium distinct grayish brown (10YR 5/2) and few medium faint brown (10YR 5/3) iron depletions in the matrix; moderately acid; clear smooth boundary.
- 2Bt3—37 to 48 inches; brown (10YR 5/3) and light olive brown (2.5Y 5/4) clay loam; weak coarse subangular blocky structure; firm; few distinct brown (10YR 4/3) clay films on faces of peds; moderately acid; gradual smooth boundary.
- 2Bt4—48 to 57 inches; brown (10YR 5/3) and light olive brown (2.5Y 5/4) loam; weak coarse prismatic structure; firm; few distinct dark brown (10YR 3/3) organo-clay films on faces of peds; slightly acid; clear smooth boundary.
- 2Cd—57 to 72 inches; light olive brown (2.5Y 5/4) loam; massive; firm; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess: 22 to 40 inches

Depth to carbonates: 40 to 60 inches

Depth to the base of the argillic horizon: 40 to 60 inches

Ap or A horizon:

Hue—10YR

Value—3 or 4

Chroma—2 to 4

Texture—silt loam

Content of rock fragments—0 to 1 percent

Reaction—moderately acid to neutral

E or BE horizon:

Hue—10YR

Value—4 or 5

Chroma—2 to 4

Texture—silt loam

Content of rock fragments—0 to 1 percent

Reaction—moderately acid to neutral

Bt horizon:

Hue—10YR

Value—4 to 6

Chroma—3 to 6

Texture—silty clay loam

Content of rock fragments—0 to 1 percent

Reaction—strongly acid to neutral

2Bt horizon:

Hue—10YR or 2.5Y

Value—4 or 5

Chroma—3 to 6

Texture—loam or clay loam

Content of rock fragments—2 to 8 percent

Reaction—moderately acid to neutral

2BC or 2 BCt horizon (where present):

Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 or 4
Texture—loam or clay loam
Content of rock fragments—2 to 8 percent
Reaction—neutral or slightly alkaline

2Cd horizon:

Hue—10YR or 2.5Y
Value—5 or 6
Chroma—3 or 4
Texture—loam
Content of rock fragments—2 to 8 percent
Reaction—slightly alkaline or moderately alkaline
Moist bulk density—more than 1.7 g/cm³

291B—Xenia silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines

Position on the landform: Summits, shoulders

Map Unit Composition

Xenia and similar soils: 94 percent

Dissimilar soils: 6 percent

Components of Minor Extent

Similar soils:

- Soils that are moderately eroded
- Soils that have a thinner subsoil
- Soils that have more than 40 inches of loess over the till
- Soils that are somewhat poorly drained
- Soils that have a dark surface layer

Dissimilar soils:

- Soil that are severely eroded
- The poorly drained Drummer soils in swales

Properties and Qualities of the Xenia Soil

Parent material: Loess over till

Drainage class: Moderately well drained

Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: 40 to 60 inches to dense material

Available water capacity: About 9.8 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.5 percent

Shrink-swell potential: Moderate

Depth and months of highest perched seasonal high water table: 1.5 feet, January through May

Ponding: None

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Flooding: None

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Very high

Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland

Hydric soil status: Not hydric

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of gravel, sand, reclamation material, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses or describe specific management concerns. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the potential of the soils for the use. Terms for limitation classes are *not limited*, *somewhat limited*, and *very limited*. Terms indicating the potential of the soils for a given use are *good*, *fair*, and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate

gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Soil Series and Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

In 2002, approximately 302,838 acres in Macon County was used as cropland. Of this total, only about 15 acres was irrigated. Corn was grown on about 151,029 acres with an average yield of 130 bushels per acre (fig. 16). Soybeans were grown on about 143,185 acres with an average yield of 47 bushels per acre. Wheat was grown on about 244 acres with an average yield of 63 bushels per acre. Hay-alfalfa was grown on about 1,446 acres with an average yield of 3 tons per acre. About 98 percent of the planted acreage was harvested (USDA, National Agricultural Statistics Service, 2008).



Figure 16.—The production of corn and soybeans is the main agricultural land use in Macon County. In areas where drainage is adequate, wheat and mixed grass-legume hay can also be successfully produced. Most of the soils in the county are favorable to agriculture.

The soils in Macon County have excellent potential for continued crop production, particularly if the latest crop production technologies are applied. This soil survey can be used as a resource for applying the latest crop production technologies.

Limitations Affecting Cropland and Pastureland

The management concerns affecting the use of the detailed soil map units in the survey area for crops and pasture are shown in table 6.

Cropland

The main concerns affecting the management of nonirrigated cropland in Macon County are crusting, excess lime, excessive permeability, flooding, high pH, limited available water capacity, ponding, poor tilth, restricted permeability, root-restrictive layers, water erosion, wetness, and wind erosion.

Crusting occurs when flowing water or raindrops break down soil structural units, moving clay downward and leaving a concentration of sand and silt particles on the soil surface. Crusting can reduce the rate of water infiltration, increase the runoff rate, inhibit seedling emergence and proper growth, and reduce oxygen diffusion to seedlings. Generally, if the structure in the surface layer is weak, a crust forms on the surface during periods of intense rainfall. Birkbeck, Camden, Clarksdale, Dana, Denny, Elco, Greenbush, Penfield, Rozetta, Russell, Sabina, Senachwine, Starks, and Wyand soils and Orthents are examples of soils that have a low content of organic matter in the surface layer, which typically increases the risk of surface crusting. Practices that help to minimize surface crusting and improve tilth are those that protect the surface from the impact of raindrops and from flowing water. Incorporating green manure crops, manure, or crop residue into the soil and using a system of conservation tillage can help to prevent crusting by improving tilth.

Excess lime can cause deficiencies of available iron, manganese, copper, and zinc. Uptake and utilization of boron by plants may be hindered. The availability of phosphate may be reduced, and the absorption of phosphorus by plants may be affected. Harpster, Hartsburg, Pella, and Spaulding soils are examples of soils that have excess lime. This limitation can be overcome by incorporating green manure crops, manure, or crop residue into the soil; applying a system of conservation tillage; applying a nutrient management system, including additions of trace elements; and using conservation cropping systems. Plants that are tolerant of excess lime, such as barley, should be selected for planting in areas of these soils.

Excessive permeability can cause deep leaching of nutrients and pesticides. Broadwell, Penfield, Sparta, and Tama soils are examples of soils that have excessive permeability. Testing soils for application rates, taking into account contributions from previous crops and manure applications, is essential for establishing proper nutrient management. The contamination of ground water should be avoided by applying nutrients at the proper time and using the proper application methods.

Flooding is considered a hazard when the map unit is commonly, occasionally, frequently, or very frequently flooded during the growing season. Flooding occurs in unprotected areas along the major rivers and their tributaries. Dikes or diversions reduce the extent of crop damage caused by floodwater. Flooding is a hazard on approximately 21,075 acres in Macon County. Most of the affected soils are frequently flooded by stream overflow. Flooding typically occurs in winter and spring. Damage to crops, particularly winter small grain crops, occurs in some years (fig. 17).

Huntsville, Lawson, Ross, Sawmill, Tice, Wabash, and Wakeland soils are examples of soils that are subject to frequent flooding for brief periods. Palms soils and some areas of Sawmill soils are frequently flooded for long periods and are generally not suitable for crops. Beaucoup soils are subject to occasional flooding.



Figure 17.—This area overlooks the Sangamon River at Lincoln Trail State Park. In areas where flooding can delay planting or cause crop damage, conservation buffers, riparian buffer strips, and flood-plain forests can protect the streambank and the soil and water resources.

Planting crops that are adapted to a shorter growing season and wetter conditions reduces the risk of crop damage caused by floodwater. Controlling runoff from higher ground within the watershed can reduce the frequency and severity of flooding. Changing land use from cropland to pasture or forestland can also minimize the economic effects of damage caused by flooding.

High pH can create plant toxicity or decreased availability of plant nutrients, either of which can affect the health and vigor of the plants. Harpster, Hartsburg, Pella, Senachwine, Spaulding, and Wyandot soils are examples of soils that have high pH in one or more layers in the upper 40 inches. Incorporating green manure crops, manure, or crop residue into the soil, applying a system of conservation tillage, applying a nutrient management system that includes additions of trace elements, and using conservation cropping systems can help to overcome this limitation. Crops that are tolerant of high pH, such as oats and barley, should be selected for planting in areas where high pH is a concern.

Limited available water capacity can result in droughtiness during periods of low rainfall. Applying supplemental irrigation or planting crops that are tolerant of droughtiness, such as wheat, rye, oats, barley, alfalfa, and pasture grasses, can help to overcome this limitation. Sparta soils are examples of soils with limited available water capacity.

Ponding inhibits aeration, increases nutrient losses, and delays spring planting (fig. 18). Soils affected by ponding in the survey area are Beaucoup, Brooklyn, Denny, Drummer, Harpster, Hartsburg, Milford, Pella, Peotone, Sable, Sawmill, Shiloh, Spaulding, Thorp, and Wabash soils. Land grading helps to control ponding. Surface ditches and surface inlet tile also help to remove excess water if suitable outlets are available. Management of drainage in conformance with regulations affecting wetlands may require special permits and extra planning.

Poor tilth can be inherent or may be caused by excessive tillage. Soils with poor tilth generally have a surface layer that is sticky when wet and hard and cloddy when dry. Because such soils can be tilled within only a narrow range in moisture content, seedbed preparation is difficult. If the timing is not right, the resultant clods can affect seed-to-soil contact. Poor tilth inhibits seedling germination and emergence, increases the rate of runoff and the hazard of erosion, and reduces the rate of water infiltration. Soils with good tilth are granular and porous and have a high content of organic matter in the surface layer. Soils that have poor tilth generally have more clay, a lower content of organic matter, and weaker soil structure in the surface layer. Dana, Milford, Peotone, Shiloh, Tice, and Wabash soils, Orthents, and the severely eroded Senachwine soils have poor tilth. If these soils are plowed when too wet, they can become cloddy. Practices that improve soil tilth are those that protect the surface from the impact of raindrops and from flowing water. Incorporating green manure crops, manure, or crop residue into the soil and using a system of conservation tillage can improve tilth. Surface cloddiness can be controlled by avoiding tillage when the soil is too wet or by using no-till farming practices.

Restricted permeability interferes with internal soil drainage and aeration. Water-logging, denitrification, compaction, delayed planting, and a higher rate of surface runoff are some common effects of restricted permeability in areas used as cropland. Many of the soils in Macon County have restricted permeability. Orthents and Beaucoup, Brooklyn, Clarksdale, Denny, Elco, Flanagan, Ipava, Milford, Peotone, Sabina, Senachwine, Shiloh, Starks, Sunbury, Thorp, Wabash, and Wyand soils are examples. In areas of these soils, drainage is required for optimum crop yields. In areas of poorly drained soils that have restricted permeability, a system of surface ditches composed of mains and laterals is the most common drainage method used. Tile drainage systems tend to perform poorly in areas of these soils, and closer spacing of the tiles may be necessary. Conservation tillage or no-till and crop residue management can help to minimize compaction and reduce the surface runoff rate.

Root-restrictive layers include dense material, natric horizons, bedrock, and fragipans. Such layers can increase the hazard of erosion and can affect plant growth



Figure 18.—Ponding in an area of Sable silty clay loam, 0 to 2 percent slopes, delays planting in the spring and may cause crop damage if it occurs late in the growing season.

by limiting nutrients and the available water capacity. Examples of soils with root-restrictive layers are Russell and Xenia soils, which are underlain by dense till. A combination of conservation measures, including using special tillage practices, incorporating organic material into the soil, and selecting proper crop varieties, can help to overcome this limitation.

Water erosion can result in a reduction in soil aggregate stability, which reduces the rate of water infiltration and increases the rate of surface runoff (Brady, 1984). Soils that have long or steep slopes are more susceptible to water erosion than some other soils. Excessive runoff can reduce the quality of surface water through sedimentation and contamination by agricultural chemicals attached to soil particles in the sediment that enters streams, rivers, water impoundments, and road ditches. Water erosion is a hazard on about 22 percent of the total land area in the county. Birkbeck, Blackberry, Broadwell, Buckhart, Camden, Catlin, Dana, Elco, Greenbush, Osco, Penfield, Plano, Proctor, Rozetta, Russell, Senachwine, Sparta, Tama, Wingate, Wyanet, and Xenia soils and Orthents are examples of soils that are susceptible to water erosion. Erosion can be controlled by a conservation tillage system that leaves crop residue on the surface after planting (fig. 19) or by a cropping system that includes rotations of grasses and legumes. On soils that have long, uniform slopes, contour farming and/or terraces in combination with a conservation tillage system can help to control erosion. Management measures that help to control water erosion can also reduce sedimentation and improve the quality of water available for rural, municipal, and recreational uses and for fish and wildlife.



Figure 19.—Crop residue left by minimum tillage practices protects the soil surface from the impact of raindrops and from runoff. It also improves tilth and the nutrient-holding capacity of the soils.

Wetness is a management concern on about 75 percent of the acreage in Macon County. Some soils are naturally so wet that the production of crops generally is not possible unless a drainage system is installed. Examples are Clarksdale, Elburn, Flanagan, Ipava, Lawson, Raub, Sabina, Starks, Sunbury, Tice, Wakeland, Wingate, and Xenia soils. Some moderately well drained soils, such as Wingate and Xenia soils, do not typically need drainage; however, these soils may benefit from drainage in some areas. Wetness can also be a concern in areas of soils that are subject to ponding, such as Beaucoup, Brooklyn, Denny, Drummer, Harpster, Hartsburg, Milford, Pella, Peotone, Sable, Sawmill, Shiloh, Spaulding, Thorp, and Wabash soils. Seasonal wetness in areas of somewhat poorly drained soils can delay planting in wet years. Most of the soils needing drainage have already been drained by surface ditches or tile. The maintenance or replacement of drainage systems is needed for maximum efficiency. Subsurface drains can lower the seasonal high water table if suitable outlets are available. In soils that have a high content of clay and restricted

permeability, subsurface drainage is not practical. In these soils, surface ditches are used to reduce the wetness. Management of drainage in conformance with regulations influencing wetlands may require special permits and extra planning.

Wind erosion can be a concern on soils that have a surface layer of sand or loamy sand. Wind erosion can also occur on fine textured soils. Generally, most soils on which the surface is exposed as a result of cultivation are subject to wind erosion. The susceptibility of the soil to wind erosion is affected by the texture of the surface layer; the moisture content of the soil; the content of organic matter, calcium carbonate, and rock fragments; aggregate stability; and cultivation practices. Large areas that are not protected by field windbreaks and cleared areas on flood plains are vulnerable. Sparta soils are highly susceptible to wind erosion. Other soils have a moderate or moderately high susceptibility to wind erosion. These include Peotone and Shiloh soils, which have a high content of clay in the surface layer, and Harpster soils, which have a high content of calcium carbonate in the surface layer. Conservation tillage, residue management, moisture management, conservation structures, and windbreaks can be used to limit the damage caused by wind erosion.

Pastureland

Growing legumes, cool-season grasses, and warm-season grasses that are suited to the soils and climate of the area helps to maintain a productive stand of pasture or hay (fig. 20). Suitable pasture and hay plants include several legumes, cool-season grasses, and native warm-season grasses. Alfalfa, red clover, alsike clover, and ladino clover are legumes commonly grown in the county. Alfalfa is best suited to soils that are not flooded or that are subject to only rare flooding, such as the well drained Broadwell, Camden, Greenbush, Huntsville, Osco, Penfield, Plano, Proctor, Rozetta, Russell, Senachwine, Tama, and Wyanet soils and the moderately well drained Birkbeck, Blackberry, Buckhart, Catlin, Dana, Elco, Wingate, and Xenia soils.



Figure 20.—An area of nearly level and gently sloping Dana and Flanagan soils used for hay.

Alfalfa is also suited to some of the somewhat poorly drained soils in which a drainage system has been installed. Other legumes, such as alsike clover, red clover, and ladino clover, are more tolerant of wetter conditions. These legumes are best suited to poorly drained soils, such as Beaucoup, Brooklyn, Denny, Drummer, Harpster, Hartsburg, Milford, Pella, Sable, Sawmill, Spaulding, and Thorp soils.

Cool-season grasses commonly grown in the county include smooth brome grass, orchardgrass, and tall fescue. These grasses can be used alone or in mixtures with legumes. Native warm-season grasses, such as indiagrass, big bluestem, and switchgrass, grow very well in the summer. They require different management techniques from those used for cool-season grasses.

Proper grazing is essential for the production of high-quality forage, stand survival, and erosion control. It helps plants to maintain sufficient and generally vigorous top growth during the growing season. Brush control is essential in many areas, and weed control is generally needed. Using rotation grazing, deferring grazing when the soil is wet, and applying lime and fertilizers as needed also are important management practices.

The main concerns affecting the management of pastureland in Macon County are equipment limitations, excess lime, excessive permeability, flooding, frost heave, high pH, limited available water capacity, low fertility, low pH, ponding, poor tilth, root-restrictive layers, water erosion, wetness, and wind erosion.

Equipment limitations make fertilization, harvest, pasture renovation, and seedbed preparation difficult or costly. The use of equipment is limited in moderately steep and steep areas of Senachwine soils.

Excess lime can result in deficiencies in available iron, manganese, copper, and zinc. The uptake and utilization of boron by plants may be hindered. The availability of phosphate may be reduced, and the absorption of phosphorus by plants may be affected. Harpster, Hartsburg, Pella, and Spaulding soils are examples of soils that have excess lime. Establishing proper nutrient management, including additions of trace elements, and applying manure can help to overcome this limitation. Big bluestem, smooth brome, red fescue, tall fescue, and timothy and other plants that are tolerant of excess lime should be selected for planting in areas of these soils.

Excessive permeability can cause deep leaching of nutrients and pesticides. Sparta soils are examples of soils that have excessive permeability. Testing soils for application rates is essential for establishing proper nutrient management. The contamination of ground water should be avoided by applying nutrients at the proper time and using the proper application methods.

Flooding occurs in unprotected areas along the major rivers and their tributaries. Surface drainage ditches help to remove floodwater where suitable outlets are available. Flooding may damage pasture plants in some years. Huntsville, Lawson, Palms, Ross, Sawmill, Tice, Wabash, and Wakeland soils are examples of soils that are subject to frequent flooding for brief periods. Selecting forage and hay varieties adapted to a shorter growing season and wetter conditions also reduces the extent of flood damage. Dikes and diversions can help to minimize the extent of flood damage. Restricted use during wet periods helps to keep the pasture in good condition. Management of drainage in conformance with regulations influencing wetlands may require special permits and extra planning.

Frost heave occurs in soils when ice lenses or bands develop into or push an ice wedge between layers of soil near the surface. The ice wedges heave the overlying soil layer upward, snapping the roots. Soils that have textures low in sand have small pores that hold water and enable ice lenses to form. Beaucoup, Brooklyn, Denny, Drummer, Harpster, Hartsburg, Milford, Palms, Pella, Peotone, Sable, Sawmill, Shiloh, Spaulding, Thorp, and Wabash soils are examples of soils that are susceptible to frost heave. Selecting adapted forage and hay varieties helps to minimize the effects of frost heave. Timely rotation of grazing maintains a vegetative

cover on the surface, which insulates the soil and thus reduces the effects of frost heave. In winter, leaving stubble 4 to 6 inches high helps to prevent frost heave. Using grass-legume mixtures can also help to prevent frost heave.

High pH can create plant toxicity or reduce the availability of plant nutrients, either of which can affect the health and vigor of the plants. Harpster, Hartsburg, Pella, Senachwine, Spaulding, and Wyand soils are examples of soils with high pH in one or more layers in the upper 40 inches. This limitation can be overcome by incorporating green manure crops, manure, or crop residue into the soil; applying a system of conservation tillage; applying a nutrient management system, including additions of trace elements; and using conservation cropping systems. Selecting crops that are tolerant of high pH, such as oats and barley, can also help to overcome this limitation.

Limited available water capacity can result in droughtiness during periods of low rainfall. Applying supplemental irrigation or planting crops that are tolerant of droughtiness, such as big bluestem, smooth brome, red fescue, alfalfa, and Kentucky bluegrass, can help to overcome this limitation. Sparta soils are examples of soils with limited available water capacity.

Low fertility is associated with a low content of organic matter and a low cation-exchange capacity, which may result in a limited capacity of the soil to retain nutrients for plant use. The severely eroded Senachwine soils are examples of soils that have low fertility. Frequent applications of small amounts of fertilizer help to prevent excessive loss of plant nutrients through leaching. Using legumes as part of a seeding mixture can provide nitrogen to the grass varieties. Timely deferment of grazing helps to maintain adequate surface cover and the content of organic matter, which is a source of nutrients in the soil.

Low pH can create toxicity or reduce the availability of nutrients, either of which can affect the health and vigor of the plants. Most of the upland soils in Macon County have pH less than or equal to 5.5 in one or more layers within a depth of 40 inches. The exceptions are Birkbeck, Blackberry, Brooklyn, Camden, Clarksdale, Dana, Elco, Greenbush, Osco, Penfield, Plano, Proctor, Raub, Rozetta, Russell, Sabina, Senachwine, Sparta, Starks, Thorp, Wingate, and Xenia soils, which typically do not have low pH. Also, many of the soils on flood plains do not have low pH. Selecting adapted forage and hay varieties and applying lime according to the results of soil tests can help to overcome this limitation. Selecting species that are tolerant of acidic conditions, such as red clover, alsike clover, redtop, big bluestem, smooth brome, orchardgrass, red fescue, tall fescue, timothy, switchgrass, Kentucky bluegrass, and crimson clover, can improve the quantity and quality of livestock forage.

Ponding affects aeration and increases nutrient losses. Some soils affected by ponding in the survey area are Beaucoup, Brooklyn, Denny, Drummer, Harpster, Hartsburg, Milford, Pella, Peotone, Sable, Sawmill, Shiloh, Spaulding, Thorp, and Wabash soils. Land grading helps to control ponding. Surface ditches and surface inlet tile also help to remove excess water if suitable outlets are available. Management of drainage in conformance with regulations influencing wetlands may require special permits and extra planning. Selecting forage and hay varieties adapted to wet conditions can improve forage production. Restricted use during wet periods helps to keep the pasture in good condition.

Poor tilth in pasture or hayland can be inherent or may be caused by erosion or excessive tillage. Soils with poor tilth generally have a surface layer that is sticky when wet and hard and cloddy when dry. Because these soils can be tilled within only a narrow range in moisture content, seedbed preparation is difficult. If the timing is not right, the resultant clods can affect seed-to-soil contact. Poor tilth inhibits seedling germination and emergence, increases runoff and erosion, and reduces the rate of water infiltration. Soils with good tilth are granular and porous and have a high

content of organic matter in the surface layer. Soils with poor tilth generally have more clay, a lower content of organic matter, and weaker soil structure in the surface layer. Orthents, the eroded Dana soils, and the severely eroded Senachwine soils have poor tilth. If these soils are tilled when too wet, they can become cloddy. Practices that improve soil tilth are those that protect the surface from the impact of raindrops and from flowing water. Surface cloddiness can be controlled by avoiding tillage when the soil is too wet or using no-till planting methods and by using a planned grazing system in areas of pastureland.

Root-restrictive layers include dense material, natric horizons, bedrock, or fragipans. Such layers can increase the hazard of erosion and limit the effectiveness of drainage systems. Root-restrictive layers affect plant growth by limiting available nutrients and the available water capacity. Examples of soils with root-restrictive layers are Russell and Xenia soils, which are underlain by dense till. A combination of conservation measures, including using special tillage practices, incorporating organic material into the soil, and selecting adapted forage and hay varieties, can help to overcome this limitation.

Water erosion reduces the productivity of the soil. It also results in sediments, livestock manure, and added nutrients entering streams, rivers, water impoundments, and road ditches. Soils with long or steep slopes are susceptible to water erosion. Orthents and Birkbeck, Camden, Catlin, Dana, Elco, Greenbush, Penfield, Plano, Proctor, Rozetta, Russell, Senachwine, Wingate, Wyanet, and Xenia soils are examples of soils that are susceptible to water erosion. Using a system of rotation grazing prevents overgrazing and thus prevents surface compaction and excessive runoff and helps to control erosion. Tilling on the contour, using a no-till system of seeding, and selecting adapted forage and hay varieties also help to control erosion.

Wetness is a management concern on about 69 percent of the acreage in Macon County. Some soils are naturally so wet that the production of crops generally is not possible unless a drainage system is installed. Wetness is a concern in areas of Clarksdale, Elburn, Flanagan, Ipava, Lawson, Raub, Sabina, Starks, Sunbury, Tice, Wakeland, Wingate, and Xenia soils. Although drainage is not typically needed in some areas of moderately well drained soils, such as Wingate and Xenia soils, drainage can improve the use of these soils as pastureland in some areas. Wetness is also considered to be a limitation in areas of soils that are subject to ponding, including Beaucoup, Brooklyn, Denny, Drummer, Harpster, Hartsburg, Milford, Pella, Peotone, Sable, Sawmill, Shiloh, Spaulding, Thorp, and Wabash soils. Most of the soils needing drainage are already drained by surface ditches or tile. The maintenance or replacement of drainage systems is necessary for maximum efficiency. Subsurface drains can lower the seasonal high water table if suitable outlets are available. In soils that have a high clay content and restricted permeability, subsurface drainage is not practical. In these soils, surface ditches are used to reduce the wetness. Management of drainage in conformance with regulations influencing wetlands may require special permits and extra planning. In undrained areas, grasses and forbs, such as switchgrass, alsike clover, and redtop, should grow well.

Wind erosion can be a concern on soils that have a surface layer of sand or loamy sand. Wind erosion can also occur on fine textured soils. Generally, most soils on which the surface is exposed as a result of cultivation are subject to wind erosion. The susceptibility of the soil to wind erosion is affected by the texture of the surface layer; the moisture content of the soil; the content of organic matter, calcium carbonate, and rock fragments; aggregate stability; and cultivation practices. Large areas that are not protected by field windbreaks and cleared areas on flood plains are vulnerable. Sparta soils are highly susceptible to wind erosion. Other soils have a moderate or moderately high susceptibility to wind erosion. These include Peotone and Shiloh soils, which have a high content of clay in the surface layer, and Harpster

soils, which have a high content of calcium carbonate in the surface layer. Conservation tillage, residue management, moisture management, conservation structures, and windbreaks can be used to limit the damage caused by wind erosion.

Erosion Control

Generally, a combination of several practices is needed to control erosion. Conservation tillage, including chisel tillage and no-till, is common in Macon County. Contour stripcropping, contour farming, conservation cropping systems, crop residue management, terraces, diversions, buffer strips, riparian areas, and grassed waterways help to prevent excessive soil loss.

The loss of the surface layer through erosion causes damage in two ways. First, productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. The subsoil generally has fewer plant nutrients, a lower content of organic matter, and a higher content of clay than the surface layer. As the content of organic matter in the tilled layer decreases and the clay content increases, soil tilth is reduced. Loss of soil tilth increases the likelihood that a crust will form on the surface; the crust can reduce the rate of water infiltration. The higher clay content increases the likelihood that the surface layer will become cloddy when tilled, especially if it is tilled when wet. As a result, preparing a seedbed becomes very difficult. Water tends to puddle on soils in eroded areas, and the crust that forms when the puddles dry up can increase the rate of surface runoff. Loss of the surface layer is especially damaging on soils that have a clayey subsoil, such as Elco soils, and on soils that are moderately or severely eroded, such as Dana, Elco, Penfield, Plano, Proctor, Russell, Senachwine, and Wyandot soils. Second, erosion on farmland results in the sedimentation and pollution of streams. Controlling erosion minimizes this pollution and improves the quality of water for municipal and recreational uses and for fish and other wildlife.

Erosion-control measures provide protective plant cover, increase the rate of water infiltration, and reduce the runoff rate. A cropping system that keeps plants on the surface for extended periods reduces the hazard of erosion and preserves the productive capacity of the soils. Including forage crops, such as grasses and legumes, in the cropping sequence helps to control erosion in the more sloping areas. It also provides nitrogen and improves tilth for the next crop.

Terraces reduce the hazard of erosion by shortening the slopes and by controlling runoff. If a tile outlet terrace is used, the water that collects behind the terrace is removed by tile at a slow, controlled rate.

Grassed waterways reduce the hazard of erosion by providing a stable channel for water runoff on sloping land (fig. 21).

Conservation buffer strips and riparian areas can help to maintain stream channels and inhibit runoff. A stream channel without trees is likely to slump, but a protected riparian area can help to maintain the stream channel.

Contour farming involves conducting tillage or other fieldwork along the contour of a slope rather than perpendicular to it. This practice helps to control erosion because it results in the formation of small ridges perpendicular to the slope of the land. The ridges greatly reduce the velocity of the water moving downhill.

Stripcropping, although not used widely in the survey area, is an effective erosion-control measure if used in combination with other methods. It involves alternating rows or strips of one crop with rows of another crop that has a different rate of maturity and a different canopy cover. The rows are planted on the contour. The resulting vegetative cover reduces the hazard of erosion by protecting the surface from the impact of raindrops.

Most of the cropland in Macon County can be protected from erosion by using a conservation tillage system. Conservation tillage includes any noninversion tillage



Figure 21.—A well maintained grassed waterway is an effective method of controlling sediment loss in the less sloping areas. This grassed waterway is in an area of Catlin, Dana, Flanagan, and Drummer soils near Harristown.

practice that keeps a protective amount of residue on the surface throughout the year. The crop residue increases the rate of water infiltration by improving tilth. It also protects the surface from the beating action of raindrops, prevents surface crusting, and provides a more friable seedbed for good germination.

Chisel tillage is a common system of conservation tillage used in Macon County. This system leaves crop residue on 20 to 60 percent of the surface. The extent of the coverage depends on the type of chisel plow used, the speed with which the equipment moves through the field, and the kind of crop planted. Chisel tillage often follows stalk chopping in the fall or is done immediately prior to planting in the spring.

In no-till systems, a grain crop is planted directly in a cover crop, sod, or the crop residue of the previous year. A special planter that disturbs only the row area is used. Herbicides are used to control competing vegetation. The nearly complete ground cover protects the soil from the impact of raindrops and helps to control erosion caused by runoff.

Erosion control through conservation tillage and cropping systems is effective alone or in combination on most of the farmland in the county. The combination used and its effectiveness depend on soil characteristics and topography. Information about the design of erosion-control practices for each kind of soil is provided in the Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

Drainage Systems

Drainage systems consist of subsurface tile drains, surface inlets, open drainage ditches, or a combination of these. They have been installed in most areas of poorly drained and somewhat poorly drained soils in the county (fig. 22). As a result, these soils are adequately drained for the crops commonly grown in the area. Some areas of poorly drained soils require surface tile inlets or shallow surface ditches to remove ponded water. Some areas of somewhat poorly drained soils are wet long enough that productivity may be reduced unless they are artificially drained. Management of drainage in conformance with regulations influencing wetlands may require special permits and extra planning.

The design of surface and subsurface drainage systems varies with the kind of soil and the availability of drainage outlets. Some areas of poorly drained soils in depressions require a combination of surface drains and tile drains. The tile should be more closely spaced in the more slowly permeable soils than in the more rapidly permeable soils. Manipulating drainage can allow the producer to conserve moisture, manage weeds and insects, and limit the leaching of nutrients and chemicals.

Further information about drainage systems is provided in the Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 7. In any given year, yields may be



Figure 22.—Drainage tile in this area of Drummer soils allows earlier planting and higher yields.

higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered (Olson and Lang, 2000; Olson and others, 2000).

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

Yields for grass-legume pasture also are shown in table 7. Pasture yields are expressed in terms of animal unit months. An animal unit month (AUM) is the amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

The estimated yields in the table reflect the productive capacity of each soil for each of the principal crops and pasture plants. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 7 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for forestland or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA, 1961).

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, 2*e*. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, or wildlife habitat.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, 2*e*-4 and 3*e*-6. These units are not given in all soil surveys.

The capability classification of the soils in this survey area is given in the section "Soil Series and Detailed Soil Map Units" and in table 7.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0

to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in Illinois has been the conversion of some prime farmland to urban and industrial uses. The loss of prime farmland to other uses puts pressure on lands that generally are less productive than prime farmland.

About 355,078 acres, or nearly 86 percent of the total acreage in Macon County, meets the requirements for prime farmland. This land is generally used for cultivated crops, mainly corn and soybeans. Prime farmland is located throughout the county.

The map units in the survey area that are considered prime farmland are listed in table 8. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 5. The location is shown on the detailed soil maps. Some of the soil qualities that affect use and management are described under the heading "Soil Series and Detailed Soil Map Units."

Hydric Soils

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. The depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the

conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform. Table 9 lists the map units that include hydric soils, either as major components or as soils of minor extent. The hydric soils listed in the table meet the definition of a hydric soil and have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and Vasilas, 2006).

The criteria for hydric soils are represented by codes in the table (for example, 2B3). Definitions for the codes are as follows:

1. All Histels except for Folistels, and Histosols except for Folistels.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
 - A. are somewhat poorly drained and have a water table at the surface (0.0 feet) during the growing season, or
 - B. are poorly drained or very poorly drained and have either:
 - 1) a water table at the surface (0.0 feet) during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
 - 2) a water table at a depth of 0.5 foot or less during the growing season if saturated hydraulic conductivity (Ksat) is equal to or greater than 6.0 in/hr in all layers within a depth of 20 inches, or
 - 3) a water table at a depth of 1.0 foot or less during the growing season if saturated hydraulic conductivity (Ksat) is less than 6.0 in/hr in any layer within a depth of 20 inches.
3. Soils that are frequently ponded for long or very long duration during the growing season.
4. Soils that are frequently flooded for long or very long duration during the growing season.

Forestland

When the first settlers arrived in the survey area, forests covered about 13 percent of the land, or 48,300 acres (Iverson and others, 1989). About 82 percent of the trees that were in the county in 1820 have been cleared from areas that are most suitable for cultivation. In 1985, only 8,600 acres, or about 2 percent of the acreage in Macon County, was forestland (Iverson and others, 1989). Most of the forestland acres are privately owned. The most common trees in the uplands are white oak, black oak, northern red oak, shagbark hickory, bitternut hickory, white ash, green ash, sugar maple, silver maple, box elder, black walnut, black cherry, and American elm (fig. 23). The most common trees on flood plains are cottonwood, sycamore, willow, pin oak, swamp white oak, hackberry, American elm, green ash, and silver maple.

The remaining forestland acres are predominantly in areas that are too steep, too wet, or too isolated for cultivation. Most of these areas are along the drainageways of the Sangamon River and its tributaries. If they are properly managed, the soils in these areas are generally well suited to growing high-quality trees.

The productivity of many of the forestland stands could be improved with proper management. Excluding livestock from the forestland, providing protection from fire, insects, and diseases, using proper logging methods, and applying proven



Figure 23.—Oak and hickory are the dominant native species in this area of Senachwine soils.

silvicultural methods to enhance growth and regeneration are management practices that are commonly needed in these areas.

Table 10 can help woodland owners or forest managers plan the use of soils for wood crops. Only those soils commonly used for wood crops are listed.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or online at <http://soils.usda.gov/technical/>.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Suggested trees to plant are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. In Macon County, Sparta soils have a surface layer that is highly susceptible

to wind erosion. Sparta soils are mapped on only about 275 acres in the county. Other soils that have a surface layer of fine sandy loam or sandy loam, have a high amount of finely divided calcium carbonate in the surface layer, or have a high content of clay in the surface layer also are susceptible to wind erosion. Peotone and Shiloh soils have a high content of clay in the surface layer, and Harpster soils have a high content of calcium carbonate in the surface layer. These soils make up about 8,875 acres in the county, or about 2 percent of the total acreage. Field windbreaks can be beneficial in areas of these soils. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 11 shows the height that locally grown trees and shrubs are expected to reach in 20 years on soils in the survey area. The estimates in the table are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service or from a commercial nursery.

Recreation

The demand for recreational facilities is increasing throughout Macon County. Public lands available for recreation include Lincoln Trail Homestead State Park, Griswold Conservation Area, Rock Springs Conservation Area, Friends Creek Conservation Area, and Spitler Woods State Natural Area. Public waterways include Lake Decatur and the Sangamon River and its tributaries. Other small areas throughout the county provide playgrounds, athletic fields, golf courses, fishing ponds, camping and picnic areas, hunting areas, and other facilities.

The potential for further recreational development is favorable throughout the county. The soils having the best potential for such development are near Lake Decatur and along the banks and tributaries of the Sangamon River. These soils are in areas where the hilly terrain, wooded slopes, and numerous streams provide a variety of locations suited to recreational uses.

The soils of the survey area are rated in tables 12a and 12b according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in tables 12a and 12b can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas (fig. 24). For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are



Figure 24.—The design of this campsite in the Friends Creek Conservation Area compensates for the moderately high water table and provides a stable parking area during wet periods throughout the year. Pictured is an area of Birkbeck silt loam, 2 to 5 percent slopes.

texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones (fig. 25). The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Wildlife Habitat

Much of Macon County is located in an area that transitions from a broad, tall-grass prairie that contained wet meadows, marshes, and areas of open water to an area dominated by central hardwood forest habitat. This area has traditionally provided valuable nesting and stop-over habitat for migratory waterfowl and important habitat for other wetland and openland wildlife species. Forestland areas, especially those along creeks and on moderately steep to very steep landforms, provide habitat for turkey, songbirds, birds of prey, and many mammals, including deer, squirrel, rabbits, fox, and beaver.



Figure 25.—Playgrounds like this one in an area of Sabina silt loam can provide years of service when they are designed to overcome wetness and other soil limitations.

As the county was settled, the conversion of land for agriculture use altered these natural communities and affected the wildlife species associated with them. Long gone are the wolf, bison, badger, black bear, cougar, and elk that roamed the area as little as 150 years ago. The landscape of Macon County is now a mosaic of urban development, cropland, pasture, forestland, wetlands, and waterways that support wildlife species that have adapted to the human-altered landscape. These species include whitetail deer, fox, coyotes, mourning doves, pheasants, squirrels, cardinals, and raccoons. Some species have been successfully reintroduced in Illinois, including the bald eagle and the river otter.

The largest areas in Macon County managed for wildlife are around Lake Decatur and along the Sangamon River and its tributaries. State, city, county, and district parks are numerous in the area. Some of the larger parks include Sportsman's Park, Sand Creek Recreation Area, Rock Springs Conservation Area, Friends Creek Conservation Area, Griswold Conservation Area, Spitler Woods State Park, and Lincoln Trail Homestead State Park.

Other areas used as wildlife habitat are not necessarily set aside for this purpose. Wildlife habitat is commonly a secondary use in areas used for other purposes, such as farming. For example, the large areas of nearly level and gently sloping soils used for cultivated crops and pasture are also generally well suited to use as habitat for openland wildlife. Most areas in the county can be improved for wildlife habitat by providing needed food, cover, and water.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate

vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants (fig. 26).

In table 13, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.



Figure 26.—Warm-season grasses, including big bluestem, planted for wildlife cover and habitat in an area of Birkbeck silt loam, 2 to 5 percent slopes, in the Rock Springs Conservation Area.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are lovegrass, orchardgrass, brome grass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, goldenrod, ragweed, wildrye, and Illinois bundleflower (fig. 27).

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, hickory, sycamore, cottonwood, elm, sassafras, serviceberry, gray dogwood, flowering dogwood, hazelnut, sumac, and raspberry. The best choices for planting on soils rated *good* are native plants, such as hazelnut, gray dogwood, silky dogwood, oak, and hickory (fig. 28).

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are white pine, Norway spruce, balsam fir, red cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness,



Figure 27.—Native prairie plants provide food and cover for upland wildlife and improve soil health in a revegetated area of Orthents.



Figure 28.—Oak, hickory, and other deciduous trees and understory shrubs and forbs on side slopes in an area of Senachwine and Russell soils along the Sangamon River.

reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, saltgrass, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds (fig. 29).

Shallow water areas can often be included in the design of ponds and lakes by utilizing the naturally shallow end of the impoundment. Wetland areas can also be created by installing water control valves on field drainage tiles, allowing for flooding of fields at times not necessary for crop production, such as after fall harvest. Valves can be opened to drain fields for spring planting while allowing soil moisture to remain high enough for good productivity. Islands, wood duck boxes, and an even mix of open water and aquatic plants help to provide optimum wildlife habitat in permanent wetland areas for wildlife (fig. 30).

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

The habitat for openland wildlife can be improved by seeding roadsides, fence rows, and wildlife travel lanes to perennial plants and legumes, such as smooth brome grass, timothy, redtop, bluegrass, alfalfa, red clover, ladino clover, and alsike clover. Grassy areas can be enhanced with perennial native prairie grasses, such as



Figure 29.—A juvenile great blue heron standing in a flooded area of Palms soils.

big bluestem, little bluestem, switchgrass, and indiangrass. Protecting nesting cover from fire, traffic, grazing, mowing, or other disturbance until after the nesting season also is important.

Warm-season grasses grow best if periodic prescribed burning is applied. Any existing woody cover should be protected from fire and grazing. Establishing hedgerows and windbreaks of trees and shrubs can provide a source of food and roosting areas. Brush piles can be built for cover along fence rows and in odd-shaped areas that are inconvenient for cultivation. Leaving crop residue on the surface after harvest and leaving waste grain in the fields can provide cover and food for wildlife throughout the winter. Also, parts of fields that are adjacent to areas of wildlife cover can be left unharvested.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for woodland wildlife can be improved by protecting native trees, shrubs, and prairie plants from grazing by livestock. Also, protecting the areas from uncontrolled fire helps to minimize the destruction of the leaf mulch and of desirable young trees, shrubs, and sprouts that provide food and cover. Establishing hedgerows, farm windbreaks, brush piles, food plots, and strips of grass or grass-legume mixtures can provide additional food and cover. Plantings for food and cover may be difficult to establish and maintain in the more sloping areas because of the hazard of erosion. Food plots of grain or seed crops should be established in the less sloping areas and should be planted on the contour. Leaving dead trees to provide den sites for raccoon, woodpeckers, opossum, and other cavity-dwelling species also improves the habitat.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas (fig. 31). Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, frogs, snakes, and turtles.

Measures that improve the habitat for wetland wildlife include delaying or limiting the cultivation and planting of commodity crops in the shallow depressions that are subject to ponding. Areas of smartweeds, bulrushes, burreeds, and barnyard grasses should be protected. Japanese millet, milo, and short corn varieties can be planted to provide food and cover. Blocking natural channels and manmade drainage systems can create shallow ponds and marshes. Pits dug in poorly drained or very poorly drained soils should be at least 30 feet in diameter and 2 to 3 feet deep. Such pits provide open water through the spring and early summer and thus encourage nesting by ducks. Wetland areas should be protected from grazing by livestock.



Figure 30.—This pond in an area of Senachwine, Russell, and Birkbeck soils provides habitat for aquatic animals and migratory birds.



Figure 31.—This area of frequently flooded Lawson soils along the Sangamon River supports hydrophytic vegetation and provides cover and habitat for wildlife. Silver maple trees are tolerant of wetness and help to stabilize the streambank during periods of flooding.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading "Soil Properties."

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay

minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, reclamation material, roadfill, and topsoil; plan structures for water management; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 14a and 14b show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Tables 15a and 15b show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The

limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A trench sanitary landfill is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the

movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Tables 16a and 16b give information about the soils as potential sources of reclamation material, roadfill, topsoil, gravel, and sand. Normal compaction, minor processing, and other standard construction practices are assumed.

In table 16a, the rating class terms are *good*, *fair*, and *poor*. The features that limit the soils as sources of reclamation material, roadfill, and topsoil are specified in the table. The numerical ratings given after the specified features indicate the degree to

which the features limit the soils as sources of these materials. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Gravel and *sand* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 16b, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good*, *fair*, or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings.

These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

Water Management

Tables 17a, 17b, and 17c give information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; aquifer-fed excavated ponds; grassed waterways; terraces and diversions; tile drains and underground outlets; and irrigation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Table 17a

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the

salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Table 17b

Grassed waterways and surface drains are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock affect the construction of grassed waterways. A hazard of wind erosion, a low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Tile drains and underground outlets are used in some areas to remove excess subsurface and surface water from the soil (fig. 32). The ratings in the table apply to undisturbed soils that commonly have a seasonal high water table within a depth of about 3.5 feet. Current land use is not considered in the ratings. Depth to bedrock, a dense layer, or a cemented pan, the content of large stones, and the content of clay influence the ease of digging, filling, and compacting. A seasonal high water table,



Figure 32.—Crops on poorly drained soils and other wet soils can benefit from tile drains and ditches. This tile drain riser inlet allows water and air to enter, thus improving flow to main tiles and drainage ditches.

ponding, and flooding may restrict the period when excavations can be made. The slope influences the use of machinery. Soil texture and depth to the water table influence the resistance to sloughing. Subsidence of organic layers influences grade and stability of tile drains. Limitations affecting areas where the tile line passes through soils in which the water table is generally below a depth of 3.5 feet are provided in the table that includes the column "shallow excavations," which is described under the heading "Building Site Development."

Table 17c

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

In a *sprinkler* irrigation system, water is sprayed over the soil surface through pipes or nozzles from a pressure system.

In a *drip or trickle* irrigation system, water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics. These results are reported in table 23.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 18 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter (fig. 33). "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the

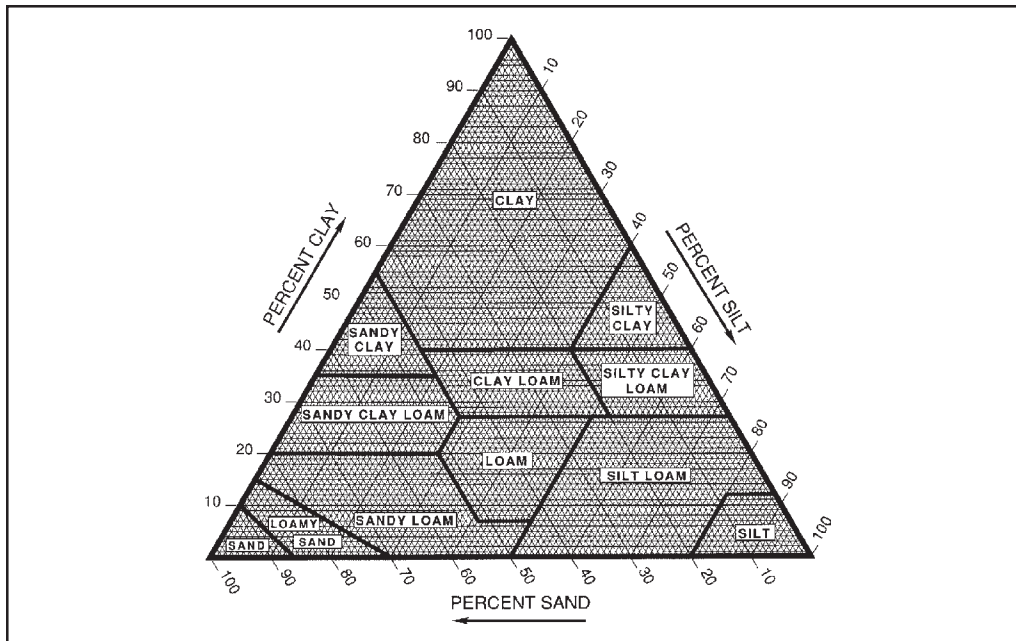


Figure 33.—Percentages of clay, silt, and sand in the basic USDA soil textural classes.

other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and plasticity index (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 19 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area.

The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In the table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In the table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $\frac{1}{3}$ - or $\frac{1}{10}$ -bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (Ksat) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (Ksat). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the

volume change between the water content of the clod at $\frac{1}{3}$ - or $\frac{1}{10}$ -bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 19, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops.

Erosion factors are shown in table 19 as the K factor (K_w and K_f) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor K_w indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor K_f indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook" (<http://soils.usda.gov/technical/>).

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 20 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange

capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

Water Features

Table 21 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Water table refers to a saturated zone in the soil. Table 21 indicates the depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone for the specified months in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone,

namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

The table also shows the *kind of water table*, that is, apparent or perched. An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 21 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and frequency of flooding are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year). *Common* is used when the occasional and frequent classes are grouped for certain purposes.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 22 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root

environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness of the restrictive layer, which significantly affects the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Engineering Index Test Data

Table 23 shows laboratory test data for several pedons sampled at carefully selected sites in the survey area. The pedons are representative of the series described in the section "Soil Series and Detailed Soil Map Units." The soil samples were tested by the Illinois Department of Transportation, Springfield, Illinois.

The testing methods generally are those of the American Association of State Highway and Transportation Officials (AASHTO) or the American Society for Testing and Materials (ASTM).

The tests and methods are Moisture density—T 99 (AASHTO), D 698 (ASTM); Mechanical analysis—T 88 (AASHTO), D 422 (ASTM), D 2217 (ASTM); Liquid limit—T 89 (AASHTO), D 4318 (ASTM); Plasticity index—T 90 (AASHTO), D 4318 (ASTM); AASHTO classification—M 145 (AASHTO), D 3282 (ASTM); and Unified classification—D 2487-00 (ASTM).

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Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the "National Soil Survey Handbook" (available in local offices of the Natural Resources Conservation Service or on the Internet).

ABC soil. A soil having an A, a B, and a C horizon.

Ablation till. Loose, relatively permeable earthy material deposited during the downwasting of nearly static glacial ice, either contained within or accumulated on the surface of the glacier.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvial fan. A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes. It is shaped like an open fan or a segment of a cone. The material was deposited by a stream at the place where it issues from a narrow mountain valley or upland valley or where a tributary stream is near or at its junction with the main stream. The fan is steepest near its apex, which points upstream, and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.

Alluvium. Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Alpha,alpha-dipyridyl. A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction toward which a slope faces. Also called slope aspect.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

- Backslope.** The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.
- Backswamp.** A flood-plain landform. Extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.
- Basal area.** The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.
- Basal till.** Compact till deposited beneath the ice.
- Base saturation.** The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.
- Base slope** (geomorphology). A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).
- Batavia facies (geology).** An informal separation of the Henry Formation. The Batavia facies occurs on outwash plains and consists of stratified silt loam to gravelly sandy loam with thin bands of finer or coarser material.
- Batestown Member (geology).** The medium textured, lowermost unit of diamicton in the Lemont Formation. Diamicton of the Batestown Member generally consists of calcareous, dark gray to gray silt loam to loam that contains lenses of gravel, sand, silt, and clay. Locally, the Batestown Member is finer texturally and therefore similar to the Yorkville Member.
- Bedding plane.** A planar or nearly planar bedding surface that visibly separates each successive layer of stratified sediment or rock (of the same or different lithology) from the preceding or following layer; a plane of deposition. It commonly marks a change in the circumstances of deposition and may show a parting, a color difference, a change in particle size, or various combinations of these. The term is commonly applied to any bedding surface, even one that is conspicuously bent or deformed by folding.
- Bedding system.** A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.
- Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.
- Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.
- Bench terrace.** A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.
- Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.
- Blowout.** A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.
- Bottom land.** An informal term loosely applied to various portions of a flood plain.
- Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.
- Breaks.** A landscape or tract of steep, rough or broken land dissected by ravines and gullies and marking a sudden change in topography.
- Breast height.** An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

- Brush management.** Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.
- Cahokia Formation (geology).** Deposits on flood plains and in channels of modern rivers and streams. Mostly poorly sorted sand, silt, or clay containing local deposits of sandy gravel.
- Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.
- Calcium carbonate.** A common mineral in sediments and soils.
- Canopy.** The leafy crown of trees or shrubs. (See Crown.)
- Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.
- Carmi facies (geology).** Largely quiet-water lake sediments dominated by well bedded silt and some clay. (See Equality Formation.)
- Catena.** A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.
- Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.
- Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.
- Catsteps.** See Terracettes.
- Channery soil material.** Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a chanter.
- Chemical treatment.** Control of unwanted vegetation through the use of chemicals.
- Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.
- Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.
- Clay depletions.** See Redoximorphic features.
- Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.
- Claypan.** A dense, compact, slowly permeable subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. A claypan is commonly hard when dry and plastic and sticky when wet.
- Climax plant community.** The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.
- Coarse textured soil.** Sand or loamy sand.
- Cobble (or cobblestone).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.
- Cobbly soil material.** Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.
- COLE (coefficient of linear extensibility).** See Linear extensibility.

- Colluvium.** Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.
- Complex slope.** Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.
- Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.
- Concretions.** See Redoximorphic features.
- Congeliturbate.** Soil material disturbed by frost action.
- Conglomerate.** A coarse grained, clastic sedimentary rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.
- Conservation cropping system.** Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.
- Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.
- Consistence, soil.** Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."
- Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.
- Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.
- Coprogenous earth (sedimentary peat).** A type of limnic layer composed predominantly of fecal material derived from aquatic animals.
- Corrosion (geomorphology).** A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.
- Corrosion (soil survey interpretations).** Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.
- Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.
- Crop residue management.** Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.
- Cropping system.** Growing crops according to a planned system of rotation and management practices.

- Cross-slope farming.** Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.
- Crown.** The upper part of a tree or shrub, including the living branches and their foliage.
- Culmination of the mean annual increment (CMAI).** The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.
- Cutbanks cave** (in tables). The walls of excavations tend to cave in or slough.
- Decreasers.** The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.
- Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.
- Delavan Member (geology).** The lower part of the Tiskilwa Formation deposited between 26,000 and 18,500 radiocarbon years ago. Consists of calcareous, brownish gray to pink or violet gray loam diamicton. Reclassified to include the former Fairgrange Till Member.
- Dense layer** (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.
- Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.
- Diamicton.** A generic term for a till-like mixture of unsorted, unstratified rock debris composed of a wide range of particle sizes. Use of this term carries no suggestion about how such debris was formed or deposited.
- Diatomaceous earth.** A geologic deposit of fine, grayish siliceous material composed chiefly or entirely of the remains of diatoms.
- Dip slope.** A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.
- Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.
- Divided-slope farming.** A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.
- Drainage class** (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained*, *somewhat excessively drained*, *well drained*, *moderately well drained*, *somewhat poorly drained*, *poorly drained*, and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”
- Drainage, surface.** Runoff, or surface flow of water, from an area.
- Drainageway.** A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

- Drift.** A general term applied to all mineral material (clay, silt, sand, gravel, and boulders) transported by a glacier and deposited directly by or from the ice or transported by running water emanating from a glacier. Drift includes unstratified material (till) that forms moraines and stratified deposits that form outwash plains, eskers, kames, varves, and glaciofluvial sediments. The term is generally applied to Pleistocene glacial deposits in areas that no longer contain glaciers.
- Drumlin.** A low, smooth, elongated oval hill, mound, or ridge of compact till that has a core of bedrock or drift. It commonly has a blunt nose facing the direction from which the ice approached and a gentler slope tapering in the other direction. The longer axis is parallel to the general direction of glacier flow. Drumlins are products of streamline (laminar) flow of glaciers, which molded the subglacial floor through a combination of erosion and deposition.
- Duff.** A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.
- Dune.** A low mound, ridge, bank, or hill of loose, windblown granular material (generally sand), either barren and capable of movement from place to place or covered and stabilized with vegetation but retaining its characteristic shape.
- Earthy fill.** See Mine spoil.
- Ecological site.** An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.
- Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.
- End moraine.** A ridgelike accumulation that is being or was produced at the outer margin of an actively flowing glacier at any given time.
- Endosaturation.** A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.
- Eolian deposit.** Sand-, silt-, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.
- Ephemeral stream.** A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.
- Episaturation.** A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.
- Equality Formation (geology).** This formation consists of gray to red silt and clay, generally shows evidence of bedding structures, and occurs above the Sangamon Geosol. Predominantly occurs as a fine grained lacustrine sediment. Ranges from 26,000 radiocarbon years to present in age. (See Mason Group.)
- Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.
- Erosion* (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.
- Erosion* (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.
- Erosion surface.** A land surface shaped by the action of erosion, especially by running water.

- Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Most commonly applied to cliffs produced by differential erosion.
Synonym: scarp.
- Esker.** A long, narrow, sinuous, steep-sided ridge of stratified sand and gravel deposited as the bed of a stream flowing in an ice tunnel within or below the ice (subglacial) or between ice walls on top of the ice of a wasting glacier and left behind as high ground when the ice melted. Eskers range in length from less than a kilometer to more than 160 kilometers and in height from 3 to 30 meters.
- Extrusive rock.** Igneous rock derived from deep-seated molten matter (magma) deposited and cooled on the earth's surface.
- Fairgrange Till Member (geology).** Abandoned nomenclature. Pink, reddish brown, and brownish gray sandy till in east-central Illinois. (See Delavan Member.)
- Fallow.** Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.
- Farmdale Geosol.** Refers to soils that formed during the Farmdalian, which in Illinois represents the second substage (about 28,000 to 22,000 years ago) of the Wisconsinan Episode during the Pleistocene. Soil development took place during this period. Most areas of this geosol have been either destroyed by the glacial advances of the Wisconsinan Episode or covered by Peoria Silt. (See Geosol; Pleistocene.)
- Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.
- Fibric soil material (peat).** The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.
- Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.
- Fill slope.** A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.
- Fine textured soil.** Sandy clay, silty clay, or clay.
- Firebreak.** An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.
- First bottom.** An obsolete, informal term loosely applied to the lowest flood-plain steps that are subject to regular flooding.
- Flaggy soil material.** Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.
- Flagstone.** A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.
- Flood plain.** The nearly level plain that borders a stream and is subject to flooding unless protected artificially.
- Flood-plain landforms.** A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps, flood-plain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.

- Flood-plain splay.** A fan-shaped deposit or other outspread deposit formed where an overloaded stream breaks through a levee (natural or artificial) and deposits its material (commonly coarse grained) on the flood plain.
- Flood-plain step.** An essentially flat, terrace-like alluvial surface within a valley that is frequently covered by floodwater from the present stream; any approximately horizontal surface still actively modified by fluvial scour and/or deposition. May occur individually or as a series of steps.
- Fluvial.** Of or pertaining to rivers or streams; produced by stream or river action.
- Footslope.** The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).
- Forb.** Any herbaceous plant not a grass or a sedge.
- Forest cover.** All trees and other woody plants (underbrush) covering the ground in a forest.
- Forest type.** A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.
- Fragipan.** A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.
- Genesis, soil.** The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.
- Geosol.** A buried soil that formed on a landscape in the past with distinctive morphological features resulting from a soil-forming environment that no longer exists at the site. The former pedogenic process was interrupted by burial. A geosol is a laterally traceable, mappable, geologic weathering profile that has a consistent stratigraphic position. (See Paleosol.)
- Glacial (geology).** This term embraces both the processes and results of erosion and deposition arising from the presence of an ice mass (glacier) on a landscape.
- Glacial lake (relict).** An area formerly occupied by a glacial lake. (See Glaciolacustrine deposits.)
- Glaciofluvial deposits.** Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur in the form of outwash plains, valley trains, deltas, kames, eskers, and kame terraces.
- Glaciolacustrine deposits.** Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are bedded or laminated.
- Glasford Formation (geology).** Encompasses all till members of Illinoian age in Illinois.
- Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.
- Graded stripcropping.** Growing crops in strips that grade toward a protected waterway.
- Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.
- Gravel.** Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

- Gravelly soil material.** Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.
- Green manure crop** (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.
- Ground moraine.** An extensive, fairly even layer of till having an uneven or undulating surface.
- Ground water.** Water filling all the unblocked pores of the material below the water table.
- Gully.** A small channel with steep sides caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.
- Haeger Member (geology).** The coarse grained, uppermost unit of diamicton in the Lemont Formation. The Haeger Member consists of calcareous, light gray to gray, gravelly sandy loam diamicton that contains lenses of gravel, sand, silt, and clay.
- Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.
- Hard to reclaim** (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.
- Hardpan.** A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.
- Head slope** (geomorphology). A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.
- Hemic soil material (mucky peat).** Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.
- Henry Formation (geology).** Consists of stratified sand and gravel that occurs above the Sangamon Geosol.
- High-residue crops.** Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.
- Hill.** A generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.
- Hillslope.** A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.
- Holocene (geology).** Postglacial age or time period (interglacial). About 0 to 12,600 years before present. (See Quaternary.)
- Horizon, soil.** A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:
- O horizon.*—An organic layer of fresh and decaying plant residue.

L horizon.—A layer of organic and mineral limnic materials, including coprogenous earth (sedimentary peat), diatomaceous earth, and marl.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential.

The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock that was formed by cooling and solidification of magma and that has not been changed appreciably by weathering since its formation. Major varieties include plutonic and volcanic rock (e.g., andesite, basalt, and granite).

Illinoian (geology). In Illinois, represents the glacial age of ice advance preceding the Sangamonian and Wisconsinan and following the Yarmouthian and pre-Illinoian during the Pleistocene. This glaciation practically covered the entire State of Illinois with the exception of small portions in northwestern, western, and southern Illinois. (See Pleistocene.)

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

Interfluve (geomorphology). A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

Interglacial. A period of time between major glacial stages. (See Holocene, Sangamonian, and Yarmouthian.)

Intermittent stream. A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. See Redoximorphic features.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation include:

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Kame. A low mound, knob, hummock, or short irregular ridge composed of stratified sand and gravel deposited by a subglacial stream as a fan or delta at the margin of a melting glacier; by a supraglacial stream in a low place or hole on the surface of the glacier; or as a ponded deposit on the surface or at the margin of stagnant ice.

Karst (topography). A kind of topography that formed in limestone, gypsum, or other soluble rocks by dissolution and that is characterized by closed depressions, sinkholes, caves, and underground drainage.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Ksat. Saturated hydraulic conductivity. (See Permeability.)

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

- Lake plain.** A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.
- Lake terrace.** A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.
- Landslide.** A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials caused by gravitational forces; the movement may or may not involve saturated materials. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.
- Large stones** (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.
- Leaching.** The removal of soluble material from soil or other material by percolating water.
- Lemont Formation (geology).** The Lemont Formation of the Wedron Group is the succession of fine to coarse textured gray diamicton units that overlie the Tiskilwa Formation. The Lemont Formation has four differentiated members: the Lemont Member, the Batestown Member, the Yorkville Member, and the Haeger Member. In northern Illinois, the Lemont Formation is not subdivided. The Lemont Formation consists of calcareous, gray, fine to coarse textured diamicton units that contain lenses of gravel, sand, silt, and clay.
- Linear extensibility.** Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $\frac{1}{3}$ - or $\frac{1}{10}$ -bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.
- Liquid limit.** The moisture content at which the soil passes from a plastic to a liquid state.
- Loam.** Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.
- Loess.** Material transported and deposited by wind and consisting dominantly of silt-sized particles.
- Low strength.** The soil is not strong enough to support loads.
- Low-residue crops.** Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.
- Mackinaw facies (geology).** An informal separation of the Henry Formation. The Mackinaw facies consists of well sorted sand and gravel outwash deposits in valleys leading outward from glacier fronts. Preserved today as terraces beneath Holocene deposits in major stream and river valleys.
- Marl.** An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal proportions; formed primarily under freshwater lacustrine conditions but also formed in more saline environments.
- Mason Group (geology).** The Mason Group comprises three proglacial and one postglacial sorted sediment formations that represent distinct stratigraphic layers based on grain size and bedding characteristics. The proglacial units are Roxana Silt, Peoria Silt, and the Henry Formation. The postglacial unit is the Equality Formation.
- Mass movement.** A generic term for the dislodgment and downslope transport of soil and rock material as a unit under direct gravitational stress.
- Masses.** See Redoximorphic features.

- Meander belt.** The zone within which migration of a meandering channel occurs; the flood-plain area included between two imaginary lines drawn tangential to the outer bends of active channel loops.
- Meander scar.** A crescent-shaped, concave or linear mark on the face of a bluff or valley wall, produced by the lateral erosion of a meandering stream that impinged upon and undercut the bluff.
- Meander scroll.** One of a series of long, parallel, close-fitting, crescent-shaped ridges and troughs formed along the inner bank of a stream meander as the channel migrated laterally down-valley and toward the outer bank.
- Mechanical treatment.** Use of mechanical equipment for seeding, brush management, and other management practices.
- Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt.
- Metamorphic rock.** Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth in the earth's crust. Nearly all such rocks are crystalline.
- Mine spoil.** An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.
- Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.
- Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.
- Miscellaneous area.** A kind of map unit that has little or no natural soil and supports little or no vegetation.
- Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.
- Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.
- Mollic epipedon.** A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.
- Moraine.** In terms of glacial geology, a mound, ridge, or other topographically distinct accumulation of unsorted, unstratified drift, predominantly till, deposited primarily by the direct action of glacial ice in a variety of landforms. Also, a general term for a landform composed mainly of till (except for kame moraines, which are composed mainly of stratified outwash) that has been deposited by a glacier. Some types of moraines are disintegration, end, ground, kame, lateral, recessional, and terminal.
- Morphology, soil.** The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.
- Morton Tongue (geology).** The lower part or tongue of Peoria Silt. It is massive, gray to gray-tan, calcareous silt. It ranges in thickness up to 10 feet and is characteristically identified in areas below materials of the Wedron Group. Deposition occurred 25,000 to 20,000 radiocarbon years ago. (See also Richland loess and Peoria Silt.)
- Mottling, soil.** Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).
- Muck.** Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. See Redoximorphic features.

Nose slope (geomorphology). A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent. Nose slopes consist dominantly of colluvium and slope-wash sediments (for example, slope alluvium).

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Outwash. Stratified and sorted sediments (chiefly sand and gravel) removed or “washed out” from a glacier by meltwater streams and deposited in front of or beyond the end moraine or the margin of a glacier. The coarser material is deposited nearer to the ice.

Outwash plain. An extensive lowland area of coarse textured glaciofluvial material. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Paleosol. A general term used to describe a soil that formed on a landscape of the past; it may be a buried soil, a relict soil, or an exhumed soil. (See Geosol.)

Paleoterrace. An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Parkland facies (geology). The Parkland facies is an informal separation of the Henry Formation occurring as dunes in outwash areas and is an informal separation of Peoria Silt if interfingering with silt in bluff areas. It consists of well sorted eolian sand deposits in the form of dunes or sheetlike deposits.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A layer of sediment, eroded from the shoulder and backslope of an erosional slope, that lies on and is being (or was) transported across a gently sloping erosional surface at the foot of a receding hill or mountain slope.

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to

100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Peoria Silt (geology). Light yellow tan to gray calcareous silt that grades from sandy silt in the bluffs to clayey silt away from the bluffs. The upper part of Peoria Silt is also informally known as Richland loess where it overlies the Wedron Group. The lower part, where buried by materials of the Wedron Group, is known as the Morton Tongue. Peoria Silt covers most of Illinois and ranges in thickness from 80 feet in bluff areas along the Mississippi River to 1 or 2 feet in areas away from the bluffs. Deposition occurred 25,000 to 12,000 years ago. (See Mason Group.)

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piatt Member (geology). The upper diamicton facies of the Tiskilwa Formation deposited between 19,000 and 18,500 radiocarbon years ago. The Piatt Member consists of gray loam diamicton containing lenses of sorted sediment. Textures may vary, especially near the surface, where this member is commonly interbedded with stratified sediment.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plateau (geomorphology). A comparatively flat area of great extent and elevation; specifically, an extensive land region that is considerably elevated (more than 100 meters) above the adjacent lower lying terrain, is commonly limited on at least one side by an abrupt descent, and has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level.

Pleistocene (geology). The period in a geologic time series that encompasses all glacial and interglacial stages. Includes the Wisconsinan, Sangamonian, Illinoian, Yarmouthian, and pre-Illinoian. The period covered is about 12,600 to 2 million years before present.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

- Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.
- Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.
- Pore linings.** See Redoximorphic features.
- Potential native plant community.** See Climax plant community.
- Potential rooting depth (effective rooting depth).** Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.
- Prescribed burning.** Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.
- Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.
- Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.
- Proper grazing use.** Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.
- Quaternary (geology).** The latest period of time in the stratigraphic column, about 0 to 2 million years before present, represented by local accumulations of glacial (Pleistocene) and postglacial (Holocene) deposits. An artificial division of time used to separate pre-human from post-human sedimentation.
- Reaction, soil.** A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

- Red beds.** Sedimentary strata that are mainly red and are made up largely of sandstone and shale.
- Redoximorphic concentrations.** See Redoximorphic features.
- Redoximorphic depletions.** See Redoximorphic features.
- Redoximorphic features.** Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and

manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:
 - A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*
 - B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*
 - C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.
2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:
 - A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*
 - B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).
3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix. See Redoximorphic features.

Regolith. All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief. The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

Richland loess (geology). An informal classification for the upper tongue of Peoria Silt that overlies the Wedron Group and the Henry and Equality Formations of the Mason Group. It is massive tan silt that is calcareous below the leach zone. The surface of modern soils in upland areas of the Wisconsinan till plain forms the upper boundary of this unit. The Richland loess ranges in thickness from 20 feet in bluff areas along the Illinois River to 1 or 2 feet in areas away from the bluffs. Deposition occurred 20,000 to 12,000 years ago. (See also Morton Tongue and Peoria Silt.)

Rill. A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

Riser. The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

- Rock fragments.** Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.
- Root zone.** The part of the soil that can be penetrated by plant roots.
- Roxana Silt (geology).** Brownish red and gray silt loam. Typically leached of carbonates. It overlies the Sangamon Geosol and is typically bounded above by Peoria Silt. It can be distinguished from Peoria Silt by being darker brown and more clayey. Deposition occurred 75,000 to 27,000 radiocarbon years ago. (See Mason Group.)
- Runoff.** The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.
- Saline soil.** A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.
- Sand.** As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.
- Sandstone.** Sedimentary rock containing dominantly sand-sized particles.
- Sangamonian (geology).** In Illinois, represents an interglacial age between the Illinoian and Wisconsinan glacial stages during the Pleistocene. (See Pleistocene; Geosol.)
- Sapric soil material (muck).** The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.
- Saturated hydraulic conductivity (Ksat).** See Permeability.
- Saturation.** Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.
- Scarification.** The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.
- Sedimentary rock.** A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.
- Sequum.** A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)
- Series, soil.** A group of soils that have profiles that are almost alike. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.
- Shale.** Sedimentary rock that formed by the hardening of a deposit of clay, silty clay, or silty clay loam and that has a tendency to split into thin layers.
- Sheet erosion.** The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.
- Shoulder.** The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.
- Shrink-swell (in tables).** The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.
- Side slope (geomorphology).** A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.
- Silica.** A combination of silicon and oxygen. The mineral form is called quartz.

- Silica-sesquioxide ratio.** The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.
- Silt.** As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.
- Siltstone.** An indurated silt having the texture and composition of shale but lacking its fine lamination or fissility; a massive mudstone in which silt predominates over clay.
- Similar soils.** Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.
- Sinkhole.** A closed, circular or elliptical depression, commonly funnel shaped, characterized by subsurface drainage and formed either by dissolution of the surface of underlying bedrock (e.g., limestone, gypsum, or salt) or by collapse of underlying caves within bedrock. Complexes of sinkholes in carbonate-rock terrain are the main components of karst topography.
- Site index.** A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.
- Slickensides** (pedogenic). Grooved, striated, and/or glossy (shiny) slip faces on structural pedes, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.
- Slope.** The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:
- | | |
|------------------------|-----------------------|
| Nearly level | 0 to 2 percent |
| Gently sloping | 2 to 5 percent |
| Strongly sloping | 5 to 10 percent |
| Moderately steep | 10 to 18 percent |
| Steep | 18 to 35 percent |
| Very steep | 35 percent and higher |
- Slope alluvium.** Sediment gradually transported down the slopes of mountains or hills primarily by nonchannel alluvial processes (i.e., slope-wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Burnished pedes and sorting of rounded or subrounded pebbles or cobbles distinguish these materials from unsorted colluvial deposits.
- Slow refill** (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.
- Sodium adsorption ratio (SAR).** A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.
- Soft bedrock.** Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.
- Soil.** A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of

climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial. Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Strath terrace. A type of stream terrace; formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice

common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talf. A geomorphic component of flat plains consisting of an essentially flat and broad area dominated by closed depressions and a nonintegrated or poorly integrated drainage system. Precipitation tends to pond locally, and lateral transport is slow both above and below ground. These conditions favor the accumulation of soil organic matter and a retention of fine earth sediments; better drained soils are commonly adjacent to drainageways.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terminal moraine. An end moraine that marks the farthest advance of a glacier. It typically has the form of a massive arcuate or concentric ridge, or complex of ridges, and is underlain by till and other types of drift.

Terrace (conservation). An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geomorphology). A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.

Terracettes. Small, irregular steplike forms on steep hillslopes, especially in pasture, formed by creep or erosion of surficial materials that may be induced or enhanced by trampling of livestock, such as sheep or cattle.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Till. Dominantly unsorted and nonstratified drift, generally unconsolidated and deposited directly by a glacier without subsequent reworking by meltwater, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, stones, and boulders; rock fragments of various lithologies are embedded within a finer matrix that can range from clay to sandy loam.

- Till plain.** An extensive area of level to gently undulating soils underlain predominantly by till and bounded at the distal end by subordinate recessional or end moraines.
- Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.
- Tiskilwa Formation (geology).** The lowermost sequence of red to gray diamicton units of the Wedron Group. The Tiskilwa Formation has three differentiated members: the Tiskilwa Member, the Delavan Member, and the Piatt Member. In northern Illinois, the Lemont Formation is not subdivided. The Tiskilwa Formation consists of calcareous, reddish gray to gray, medium textured (clay loam to loam) diamicton units that contain lenses of gravel, sand, silt, and clay. Typically it oxidizes to reddish brown, brown, or yellowish brown.
- Toeslope.** The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.
- Topsoil.** The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.
- Trace elements.** Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.
- Tread.** The flat to gently sloping, topmost, laterally extensive slope of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.
- Upland.** An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.
- Valley fill.** The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) so as to fill or partly fill a valley.
- Vandalia Till Member (geology).** The Vandalia Till Member of the Glasford Formation consists of clay loam diamicton. It is generally gray and calcareous, except where weathered. It is commonly 25 to 30 feet thick and bounded at the top by the Sangamon Geosol.
- Variation.** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.
- Varve.** A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.
- Wasco facies (geology).** The Wasco facies is an informal separation of the Henry Formation. It consists of poorly sorted sand and gravel outwash deposits in kames, eskers, and deltas.
- Water bars.** Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.
- Weathering.** All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.
- Wedron Group (geology).** Mostly diamicton of the Wisconsinan Age.
- Well graded.** Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be

easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Wisconsinan (geology). In Illinois, represents the last glacial stage of ice advance during the Pleistocene. Follows the Sangamonian interglacial stage. (See Pleistocene.)

Yarmouthian (geology). In Illinois, represents an interglacial stage between the pre-Illinoian and Illinoian glacial stages during the Pleistocene. (See Pleistocene.)

Yorkville Member (geology). The Yorkville Member is the middle unit of diamicton in the Lemont Formation. The Yorkville Member generally consists of calcareous gray, fine textured (silty clay to silty clay loam) diamicton that contains lenses of gravel, sand, silt, and clay. It typically oxidizes to olive brown. Locally, the Yorkville Member is coarser texturally and therefore similar to the Batestown Member.

Tables

Soil Survey of Macon County, Illinois

Table 1.--Temperature and Precipitation
(Recorded in the period 1971-2000 at Decatur, Illinois)

	Temperature						Precipitation				
Month				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	34.3	17.0	25.6	62	-16	1	2.11	0.98	3.13	4	7.5
February---	40.7	22.3	31.5	69	-12	7	1.94	.78	3.00	4	4.9
March-----	52.4	31.8	42.1	81	5	50	3.25	1.71	4.79	7	2.2
April-----	65.1	41.7	53.4	86	20	172	3.63	2.00	5.18	7	.4
May-----	75.9	51.4	63.6	92	31	423	4.50	2.00	6.56	7	.0
June-----	84.5	60.5	72.5	98	42	674	3.79	1.89	5.49	6	.0
July-----	87.7	64.5	76.1	99	49	805	4.60	1.81	6.85	6	.0
August-----	85.9	62.8	74.4	99	45	754	4.10	1.88	6.23	5	.0
September--	79.8	54.9	67.3	96	33	520	2.98	1.18	4.62	4	.0
October----	67.8	43.8	55.8	88	21	224	2.76	1.55	3.63	5	.0
November---	51.9	33.4	42.7	77	10	50	3.16	1.57	4.62	6	1.1
December---	39.5	22.9	31.2	66	-8	7	2.86	1.23	4.24	5	5.4
Yearly:											
Average---	63.8	42.2	53.0	---	---	---	---	---	---	---	---
Extreme---	106	-23	---	101	-19	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,687	39.68	30.22	46.02	66	21.5

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

Soil Survey of Macon County, Illinois

Table 2.--Freeze Dates in Spring and Fall
(Recorded in the period 1971-2000 at Decatur, Illinois)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 15	Apr. 21	May 12
2 years in 10 later than--	Apr. 10	Apr. 17	May 6
5 years in 10 later than--	Apr. 1	Apr. 9	Apr. 23
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 15	Oct. 7	Sept. 25
2 years in 10 earlier than--	Oct. 21	Oct. 12	Sept. 30
5 years in 10 earlier than--	Nov. 1	Oct. 22	Oct. 10

Table 3.--Growing Season
(Recorded in the period 1971-2000 at Decatur,
Illinois)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	190	175	144
8 years in 10	198	182	152
5 years in 10	214	195	168
2 years in 10	230	208	185
1 year in 10	238	215	193

Soil Survey of Macon County, Illinois

Table 4.--Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series)

Soil name	Family or higher taxonomic class
Beaucoup-----	Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls
Birkbeck-----	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Blackberry-----	Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls
Broadwell-----	Fine-silty, mixed, superactive, mesic Typic Argiudolls
Brooklyn-----	Fine, smectitic, mesic Mollic Albaqualfs
Buckhart-----	Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls
Camden-----	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Catlin-----	Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls
*Clarksdale-----	Fine, smectitic, mesic Mollic Endoaqualfs
Dana-----	Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls
*Dana-----	Fine-silty, mixed, superactive, mesic Mollic Oxyaquic Hapludalfs
Denny-----	Fine, smectitic, mesic Mollic Albaqualfs
Drummer-----	Fine-silty, mixed, superactive, mesic Typic Endoaquolls
Elburn-----	Fine-silty, mixed, superactive, mesic Aquic Argiudolls
Elco-----	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Flanagan-----	Fine, smectitic, mesic Aquic Argiudolls
Greenbush-----	Fine-silty, mixed, superactive, mesic Mollic Hapludalfs
Harpster-----	Fine-silty, mixed, superactive, mesic Typic Calciaquolls
Hartsburg-----	Fine-silty, mixed, superactive, mesic Typic Endoaquolls
Huntsville-----	Fine-silty, mixed, superactive, mesic Cumulic Hapludolls
Ipava-----	Fine, smectitic, mesic Aquic Argiudolls
Lawson-----	Fine-silty, mixed, superactive, mesic Aquic Cumulic Hapludolls
Milford-----	Fine, mixed, superactive, mesic Typic Endoaquolls
Orthents-----	Fine-loamy, mixed, active, nonacid, mesic Aquic Udorthents
Orthents-----	Loamy, mesic Udorthents
Osco-----	Fine-silty, mixed, superactive, mesic Typic Argiudolls
Palms-----	Loamy, mixed, euic, mesic Terric Haplosaprists
Pella-----	Fine-silty, mixed, superactive, mesic Typic Endoaquolls
*Penfield-----	Fine-loamy, mixed, active, mesic Mollic Hapludalfs
Peotone-----	Fine, smectitic, mesic Cumulic Vertic Endoaquolls
Plano-----	Fine-silty, mixed, superactive, mesic Typic Argiudolls
*Plano-----	Fine-silty, mixed, superactive, mesic Mollic Hapludalfs
Proctor-----	Fine-silty, mixed, superactive, mesic Typic Argiudolls
*Proctor-----	Fine-silty, mixed, superactive, mesic Mollic Hapludalfs
Raub-----	Fine-silty, mixed, superactive, mesic Aquic Argiudolls
Ross-----	Fine-loamy, mixed, superactive, mesic Cumulic Hapludolls
Rozetta-----	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Russell-----	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
*Sabina-----	Fine, smectitic, mesic Aquic Hapludalfs
Sable-----	Fine-silty, mixed, superactive, mesic Typic Endoaquolls
Sawmill-----	Fine-silty, mixed, superactive, mesic Cumulic Endoaquolls
Senachwine-----	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Shiloh-----	Fine, smectitic, mesic Cumulic Vertic Endoaquolls
*Sparta-----	Sandy, mixed, mesic Typic Hapludolls
Spaulding-----	Fine-silty, mixed, superactive, mesic Typic Calciaquolls
*Starks-----	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Sunbury-----	Fine, smectitic, mesic Aquollic Hapludalfs
Tama-----	Fine-silty, mixed, superactive, mesic Typic Argiudolls
Thorp-----	Fine-silty, mixed, superactive, mesic Argiaquic Argialbolls
Tice-----	Fine-silty, mixed, superactive, mesic Fluvaquentic Hapludolls
Wabash-----	Fine, smectitic, mesic Cumulic Vertic Endoaquolls
Wakeland-----	Coarse-silty, mixed, superactive, nonacid, mesic Aeris Fluvaquents
Wingate-----	Fine-silty, mixed, superactive, mesic Mollic Oxyaquic Hapludalfs
*Wyanet-----	Fine-loamy, mixed, active, mesic Mollic Hapludalfs
Xenia-----	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs

Soil Survey of Macon County, Illinois

Table 5.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
43A	Ipava silt loam, 0 to 2 percent slopes-----	26,938	7.2
45A	Denny silt loam, 0 to 2 percent slopes-----	1,299	0.3
56B	Dana silt loam, 2 to 5 percent slopes-----	6,268	1.7
56B2	Dana silt loam, 2 to 5 percent slopes, eroded-----	112	*
56C2	Dana silty clay loam, 5 to 10 percent slopes, eroded-----	2,281	0.6
67A	Harpster silty clay loam, 0 to 2 percent slopes-----	5,891	1.6
68A	Sable silty clay loam, 0 to 2 percent slopes-----	38,955	10.4
86B	Osco silt loam, 2 to 5 percent slopes-----	2,897	0.8
88C	Sparta loamy sand, 5 to 10 percent slopes-----	275	*
119C2	Elco silt loam, 5 to 10 percent slopes, eroded-----	168	*
132A	Starks silt loam, 0 to 2 percent slopes-----	156	*
134B	Camden silt loam, 2 to 5 percent slopes-----	611	0.2
136A	Brooklyn silt loam, 0 to 2 percent slopes-----	1,616	0.4
138A	Shiloh silty clay loam, 0 to 2 percent slopes-----	1,569	0.4
148B	Proctor silt loam, 2 to 5 percent slopes-----	813	0.2
148C2	Proctor silt loam, 5 to 10 percent slopes, eroded-----	485	0.1
152A	Drummer silty clay loam, 0 to 2 percent slopes-----	39,392	10.5
153A	Pella silty clay loam, 0 to 2 percent slopes-----	2,250	0.6
154A	Flanagan silt loam, 0 to 2 percent slopes-----	70,980	18.9
171B	Catlin silt loam, 2 to 5 percent slopes-----	24,390	6.5
198A	Elburn silt loam, 0 to 2 percent slopes-----	14,161	3.8
199A	Plano silt loam, 0 to 2 percent slopes-----	1,715	0.5
199B	Plano silt loam, 2 to 5 percent slopes-----	3,861	1.0
199C2	Plano silt loam, 5 to 10 percent slopes, eroded-----	343	*
206A	Thorp silt loam, 0 to 2 percent slopes-----	1,055	0.3
233B	Birkbeck silt loam, 2 to 5 percent slopes-----	9,666	2.6
234A	Sunbury silt loam, 0 to 2 percent slopes-----	1,634	0.4
236A	Sabina silt loam, 0 to 2 percent slopes-----	3,493	0.9
244A	Hartsburg silty clay loam, 0 to 2 percent slopes-----	7,108	1.9
257A	Clarksdale silt loam, 0 to 2 percent slopes-----	853	0.2
279B	Rozetta silt loam, 2 to 5 percent slopes-----	174	*
291B	Xenia silt loam, 2 to 5 percent slopes-----	2,109	0.6
322C2	Russell silt loam, 5 to 10 percent slopes, eroded-----	4,556	1.2
330A	Peotone silty clay loam, 0 to 2 percent slopes-----	1,415	0.4
348B	Wingate silt loam, 2 to 5 percent slopes-----	938	0.3
481A	Raub silt loam, 0 to 2 percent slopes-----	1,192	0.3
533	Urban land-----	3,193	0.9
618C2	Senachwine silt loam, 5 to 10 percent slopes, eroded-----	3,767	1.0
618D2	Senachwine silt loam, 10 to 18 percent slopes, eroded-----	2,720	0.7
618D3	Senachwine clay loam, 10 to 18 percent slopes, severely eroded-----	1,127	0.3
618F	Senachwine silt loam, 18 to 35 percent slopes-----	3,868	1.0
618G	Senachwine silt loam, 35 to 60 percent slopes-----	466	0.1
622B2	Wyanet silt loam, 2 to 5 percent slopes, eroded-----	1,056	0.3
622C2	Wyanet silt loam, 5 to 10 percent slopes, eroded-----	3,378	0.9
675B	Greenbush silt loam, 2 to 5 percent slopes-----	324	*
679B	Blackberry silt loam, 2 to 5 percent slopes-----	1,401	0.4
684B	Broadwell silt loam, 2 to 5 percent slopes-----	608	0.2
687C2	Penfield loam, 5 to 10 percent slopes, eroded-----	271	*
705B	Buckhart silt loam, 2 to 5 percent slopes-----	311	*
712A	Spaulding silty clay loam, 0 to 2 percent slopes-----	480	0.1
722A	Drummer-Milford silty clay loams, 0 to 2 percent slopes-----	36,459	9.7
737B	Tama silt loam, very deep to sand, 2 to 5 percent slopes-----	659	0.2
749B	Buckhart silt loam, till substratum, 2 to 5 percent slopes-----	2,792	0.7
802B	Orthents, loamy, undulating-----	2,013	0.5
802D	Orthents, loamy, rolling-----	1,186	0.3
865	Pits, gravel-----	181	*
1083A	Wabash silty clay, undrained, 0 to 2 percent slopes, frequently flooded-----	285	*
1107A	Sawmill silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded-----	545	0.1
3073A	Ross silt loam, 0 to 2 percent slopes, frequently flooded-----	15	*
3077A	Huntsville silt loam, 0 to 2 percent slopes, frequently flooded-----	711	0.2
3083A	Wabash silty clay, 0 to 2 percent slopes, frequently flooded-----	453	0.1
3107A	Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded-----	9,926	2.6
3284A	Tice silty clay loam, 0 to 2 percent slopes, frequently flooded-----	1,579	0.4

See footnote at end of table.

Soil Survey of Macon County, Illinois

Table 5.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
3333A	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded-----	224	*
3352A	Palms silty clay loam, 0 to 2 percent slopes, frequently flooded, overwash-----	36	*
3451A	Lawson silt loam, 0 to 2 percent slopes, frequently flooded-----	7,130	1.9
7134B	Camden silt loam, 2 to 5 percent slopes, rarely flooded-----	258	*
7136A	Brooklyn silt loam, 0 to 2 percent slopes, rarely flooded-----	180	*
7198A	Elburn silt loam, 0 to 2 percent slopes, rarely flooded-----	125	*
7199B	Plano silt loam, 2 to 5 percent slopes, rarely flooded-----	284	*
7802B	Orthents, loamy, undulating, rarely flooded-----	334	*
7865	Pits, gravel, rarely flooded-----	107	*
8070A	Beaucoup silty clay loam, 0 to 2 percent slopes, occasionally flooded-----	171	*
M-W	Miscellaneous water-----	371	*
W	Water-----	4,307	1.1
	Total-----	374,920	100.0

* Less than 0.1 percent.

Soil Survey of Macon County, Illinois

Table 6.--Limitations and Hazards Affecting Cropland and Pastureland

(See text for a description of the limitations and hazards listed in this table. Only the soils that are generally available for use as cropland or pastureland are listed. Absence of an entry indicates that the soil is generally not suited to use as cropland or pastureland)

Map symbol and soil name	Limitations and hazards affecting cropland	Limitations and hazards affecting pastureland
43A: Ipava-----	Wetness, restricted permeability.	Wetness.
45A: Denny-----	Ponding, wetness, crusting, restricted permeability.	Ponding, wetness, frost heave.
56B: Dana-----	Water erosion	Low pH, water erosion.
56B2: Dana-----	Crusting, water erosion	Low pH, water erosion.
56C2: Dana-----	Poor tilth, crusting, water erosion.	Poor tilth, water erosion.
67A: Harpster-----	Ponding, wetness, high pH, excess lime.	Ponding, wetness, high pH, excess lime, frost heave.
68A: Sable-----	Ponding, wetness	Ponding, wetness, frost heave.
86B: Osco-----	Water erosion	Low pH.
88C: Sparta-----	Wind erosion, limited available water capacity, excessive permeability.	Low pH, wind erosion, limited available water capacity, excessive permeability.
119C2: Elco-----	Crusting, water erosion, restricted permeability.	Low pH, water erosion.
132A: Starks-----	Wetness, crusting, restricted permeability.	Wetness, low pH.
134B: Camden-----	Crusting, water erosion	Low pH, water erosion.
136A: Brooklyn-----	Ponding, wetness, restricted permeability.	Ponding, wetness, low pH, frost heave.
138A: Shiloh-----	Ponding, wetness, poor tilth, restricted permeability.	Ponding, wetness, frost heave.
148B: Proctor-----	Water erosion	Low pH, water erosion.
148C2: Proctor-----	Water erosion	Water erosion.

Soil Survey of Macon County, Illinois

Table 6.--Limitations and Hazards Affecting Cropland and Pastureland--Continued

Map symbol and soil name	Limitations and hazards affecting cropland	Limitations and hazards affecting pastureland
152A: Drummer-----	Ponding, wetness	Ponding, wetness, frost heave.
153A: Pella-----	Ponding, wetness, high pH, excess lime.	Ponding, wetness, high pH, excess lime, frost heave.
154A: Flanagan-----	Wetness, restricted permeability.	Wetness.
171B: Catlin-----	Water erosion	Water erosion.
198A: Elburn-----	Wetness	Wetness.
199A: Plano-----	No major limitations	Low pH.
199B: Plano-----	Water erosion	Low pH.
199C2: Plano-----	Water erosion	Low pH, water erosion.
206A: Thorp-----	Ponding, wetness, restricted permeability.	Ponding, wetness, low pH, frost heave.
233B: Birkbeck-----	Crusting, water erosion	Low pH, water erosion.
234A: Sunbury-----	Wetness, restricted permeability.	Wetness.
236A: Sabina-----	Wetness, crusting, restricted permeability.	Wetness, low pH.
244A: Hartsburg-----	Ponding, wetness, high pH, excess lime.	Ponding, wetness, high pH, excess lime, frost heave.
257A: Clarksdale-----	Wetness, crusting, restricted permeability.	Wetness, low pH.
279B: Rozetta-----	Crusting, water erosion	Low pH, water erosion.
291B: Xenia-----	Wetness, root-restrictive layer, crusting, water erosion.	Wetness, root-restrictive layer, low pH, water erosion.
322C2: Russell-----	Root-restrictive layer, crusting, water erosion.	Root-restrictive layer, low pH, water erosion.

Soil Survey of Macon County, Illinois

Table 6.--Limitations and Hazards Affecting Cropland and Pastureland--Continued

Map symbol and soil name	Limitations and hazards affecting cropland	Limitations and hazards affecting pastureland
330A: Peotone-----	Ponding, wetness, poor tilth, restricted permeability.	Ponding, wetness, frost heave.
348B: Wingate-----	Wetness, water erosion	Wetness, low pH, water erosion.
481A: Raub-----	Wetness	Wetness, low pH.
618C2: Senachwine-----	High pH, crusting, water erosion, restricted permeability.	Low pH, high pH, water erosion.
618D2: Senachwine-----	High pH, crusting, water erosion, restricted permeability.	Low pH, high pH, water erosion.
618D3: Senachwine-----	Poor tilth, high pH, crusting, water erosion, restricted permeability.	Poor tilth, low pH, high pH, water erosion, low fertility.
618F: Senachwine-----	---	Equipment limitation, low pH, water erosion.
618G: Senachwine-----	---	---
622B2: Wyanet-----	High pH, crusting, water erosion, restricted permeability.	High pH.
622C2: Wyanet-----	High pH, crusting, water erosion, restricted permeability.	High pH, water erosion.
675B: Greenbush-----	Crusting, water erosion	Low pH, water erosion.
679B: Blackberry-----	Water erosion	Low pH.
684B: Broadwell-----	Water erosion, excessive permeability.	Excessive permeability.
687C2: Penfield-----	Crusting, water erosion, excessive permeability.	Low pH, water erosion, excessive permeability.
705B: Buckhart-----	Water erosion	No major limitations.
712A: Spaulding-----	Ponding, wetness, high pH, excess lime.	Ponding, wetness, high pH, excess lime, frost heave.

Soil Survey of Macon County, Illinois

Table 6.--Limitations and Hazards Affecting Cropland and Pastureland--Continued

Map symbol and soil name	Limitations and hazards affecting cropland	Limitations and hazards affecting pastureland
722A: Drummer-----	Ponding, wetness	Ponding, wetness, frost heave.
Milford-----	Ponding, wetness, poor tilth, restricted permeability.	Ponding, wetness, frost heave.
737B: Tama-----	Water erosion, excessive permeability.	Excessive permeability.
749B: Buckhart-----	Water erosion	No major limitations.
802B: Orthents-----	Poor tilth, crusting, water erosion, restricted permeability.	Poor tilth, water erosion.
802D: Orthents-----	Poor tilth, crusting, water erosion, restricted permeability.	Poor tilth, water erosion.
1083A: Wabash-----	---	Flooding, ponding, wetness, frost heave.
1107A: Sawmill-----	---	Flooding, ponding, wetness, frost heave.
3073A: Ross-----	Flooding	Flooding.
3077A: Huntsville-----	Flooding	Flooding.
3083A: Wabash-----	Flooding, ponding, wetness, poor tilth, restricted permeability.	Flooding, ponding, wetness, frost heave.
3107A: Sawmill-----	Flooding, ponding, wetness	Flooding, ponding, wetness, frost heave.
3284A: Tice-----	Flooding, wetness, poor tilth	Flooding, wetness, poor tilth.
3333A: Wakeland-----	Flooding, wetness	Flooding, wetness.
3352A: Palms-----	---	Flooding, ponding, wetness, frost heave, excessive permeability.
3451A: Lawson-----	Flooding, wetness	Flooding, wetness.
7134B: Camden-----	Crusting, water erosion	Low pH, water erosion.

Soil Survey of Macon County, Illinois

Table 6.--Limitations and Hazards Affecting Cropland and Pastureland--Continued

Map symbol and soil name	Limitations and hazards affecting cropland	Limitations and hazards affecting pastureland
7136A: Brooklyn-----	Ponding, wetness, restricted permeability.	Ponding, wetness, low pH, frost heave.
7198A: Elburn-----	Wetness	Wetness.
7199B: Plano-----	Water erosion	No major limitations.
7802B: Orthents-----	Poor tilth, crusting, water erosion, restricted permeability.	Poor tilth, water erosion.
8070A: Beaucoup-----	Flooding, ponding, wetness, restricted permeability.	Flooding, ponding, wetness, frost heave.

Soil Survey of Macon County, Illinois

Table 7.--Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	Bu	Bu	Tons	AUM*
43A: Ipava-----	1	172	56	69	5.31	7.80
45A: Denny-----	3w	143	47	58	4.41	6.50
56B: Dana-----	2e	160	50	61	5.59	8.25
56B2: Dana-----	2e	154	48	59	5.37	7.80
56C2: Dana-----	3e	151	47	58	5.25	7.60
67A: Harpster-----	2w	164	52	61	4.86	7.20
68A: Sable-----	2w	173	57	67	5.20	7.70
86B: Osco-----	2e	170	53	67	6.16	9.00
88C: Sparta-----	4s	104	36	44	3.51	5.12
119C2: Elco-----	3e	126	42	49	3.57	5.20
132A: Starks-----	1	147	46	57	4.63	6.83
134B: Camden-----	2e	148	46	57	4.25	6.27
136A: Brooklyn-----	2w	136	44	54	4.07	6.00
138A: Shiloh-----	3w	158	52	62	4.86	7.17
148B: Proctor-----	2e	164	51	62	5.70	8.42
148C2: Proctor-----	3e	154	48	59	5.36	7.82
152A: Drummer-----	2w	175	57	66	5.09	7.50
153A: Pella-----	2w	165	54	63	4.75	7.00

See footnote at end of table.

Soil Survey of Macon County, Illinois

Table 7.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	Bu	Bu	Tons	AUM*
154A: Flanagan-----	1	175	56	69	5.31	7.83
171B: Catlin-----	2e	166	52	65	6.04	8.91
198A: Elburn-----	1	178	55	67	5.20	7.67
199A: Plano-----	1	175	54	67	6.33	9.30
199B: Plano-----	2e	173	53	66	6.27	9.10
199C2: Plano-----	3e	163	50	62	5.89	8.60
206A: Thorp-----	2w	153	50	60	4.60	6.80
233B: Birkbeck-----	2e	149	47	59	4.58	6.76
234A: Sunbury-----	1	162	51	63	4.97	7.33
236A: Sabina-----	1	151	47	59	4.63	6.80
244A: Hartsburg-----	2w	164	53	61	4.86	7.20
257A: Clarksdale-----	2w	157	50	62	4.75	7.00
279B: Rozetta-----	2e	147	46	58	4.70	6.90
291B: Xenia-----	2e	145	45	57	4.03	5.94
322C2: Russell-----	3e	134	42	53	3.79	5.52
330A: Peotone-----	3w	148	49	55	4.52	6.67
348B: Wingate-----	2e	148	46	60	4.81	7.10
481A: Raub-----	1	165	52	66	5.09	7.50
533: Urban land-----	8	---	---	---	---	---
618C2: Senachwine-----	3e	123	40	48	2.94	4.29

See footnote at end of table.

Soil Survey of Macon County, Illinois

Table 7.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	Bu	Bu	Tons	AUM*
618D2: Senachwine-----	4e	115	37	45	2.75	3.97
618D3: Senachwine-----	4e	104	34	41	2.50	3.60
618F: Senachwine-----	6e	---	---	---	2.31	3.36
618G: Senachwine-----	7e	---	---	---	---	2.20
622B2: Wyanet-----	2e	138	45	56	4.51	6.65
622C2: Wyanet-----	3e	135	44	55	4.42	6.40
675B: Greenbush-----	2e	164	51	62	4.81	7.10
679B: Blackberry-----	2e	173	53	66	5.70	8.40
684B: Broadwell-----	2e	167	52	65	6.04	8.91
687C2: Penfield-----	3e	147	47	60	4.84	7.00
705B: Buckhart-----	2e	169	54	66	6.60	9.20
712A: Spaulding-----	2w	164	53	61	4.86	7.20
722A----- Drummer-Milford	2w	167	55	64	5.04	7.40
737B: Tama, very deep to sand-----	2e	167	52	65	6.48	9.50
749B: Buckhart, till substratum-----	2e	169	54	66	6.60	9.20
802B: Orthents, loamy----	3e	---	---	---	---	---
802D: Orthents, loamy----	4e	---	---	---	---	---
865: Pits, gravel-----	8	---	---	---	---	---
1083A: Wabash, undrained---	5w	---	---	---	---	4.43

See footnote at end of table.

Soil Survey of Macon County, Illinois

Table 7.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	Bu	Bu	Tons	AUM*
1107A: Sawmill, undrained--	5w	---	---	---	---	5.37
3073A: Ross-----	3w	147	48	---	4.37	6.45
3077A: Huntsville-----	3w	157	50	---	6.10	9.00
3083A: Wabash-----	3w	127	41	---	3.86	5.70
3107A: Sawmill-----	3w	153	49	58	4.68	6.90
3284A: Tice-----	3w	149	46	---	4.59	6.70
3333A: Wakeland-----	3w	141	46	---	4.17	6.15
3352A: Palms-----	5w	---	---	---	---	4.32
3451A: Lawson-----	3w	154	49	---	4.68	6.90
7134B: Camden, rarely flooded-----	2e	148	46	57	4.25	6.27
7136A: Brooklyn, rarely flooded-----	2w	136	44	54	4.07	6.00
7198A: Elburn-----	1	178	55	67	5.20	7.67
7199B: Plano-----	2e	173	53	66	6.27	9.24
7802B: Orthents, loamy, rarely flooded----	3e	---	---	---	---	---
7865: Pits, gravel-----	8	---	---	---	---	---
8070A: Beaucoup-----	2w	159	53	62	4.86	7.20

* Animal unit month: The amount of forage required to feed one mature cow, of approximately 1,000 pounds weight, with or without a calf, for 30 days.

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Table 8.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name
43A	Ipava silt loam, 0 to 2 percent slopes
45A	Denny silt loam, 0 to 2 percent slopes (where drained)
56B	Dana silt loam, 2 to 5 percent slopes
56B2	Dana silt loam, 2 to 5 percent slopes, eroded
67A	Harpster silty clay loam, 0 to 2 percent slopes (where drained)
68A	Sable silty clay loam, 0 to 2 percent slopes (where drained)
86B	Oscos silt loam, 2 to 5 percent slopes
132A	Starks silt loam, 0 to 2 percent slopes
134B	Camden silt loam, 2 to 5 percent slopes
136A	Brooklyn silt loam, 0 to 2 percent slopes (where drained)
138A	Shiloh silty clay loam, 0 to 2 percent slopes (where drained)
148B	Proctor silt loam, 2 to 5 percent slopes
152A	Drummer silty clay loam, 0 to 2 percent slopes (where drained)
153A	Pella silty clay loam, 0 to 2 percent slopes (where drained)
154A	Flanagan silt loam, 0 to 2 percent slopes
171B	Catlin silt loam, 2 to 5 percent slopes
198A	Elburn silt loam, 0 to 2 percent slopes
199A	Plano silt loam, 0 to 2 percent slopes
199B	Plano silt loam, 2 to 5 percent slopes
206A	Thorp silt loam, 0 to 2 percent slopes (where drained)
233B	Birkbeck silt loam, 2 to 5 percent slopes
234A	Sunbury silt loam, 0 to 2 percent slopes
236A	Sabina silt loam, 0 to 2 percent slopes
244A	Hartsburg silty clay loam, 0 to 2 percent slopes (where drained)
257A	Clarksdale silt loam, 0 to 2 percent slopes (where drained)
279B	Rozetta silt loam, 2 to 5 percent slopes
291B	Xenia silt loam, 2 to 5 percent slopes
330A	Peotone silty clay loam, 0 to 2 percent slopes (where drained)
348B	Wingate silt loam, 2 to 5 percent slopes
481A	Raub silt loam, 0 to 2 percent slopes
622B2	Wyanet silt loam, 2 to 5 percent slopes, eroded
675B	Greenbush silt loam, 2 to 5 percent slopes
679B	Blackberry silt loam, 2 to 5 percent slopes
684B	Broadwell silt loam, 2 to 5 percent slopes
705B	Buckhart silt loam, 2 to 5 percent slopes
712A	Spaulding silty clay loam, 0 to 2 percent slopes (where drained)
722A	Drummer-Milford silty clay loams, 0 to 2 percent slopes (where drained)
737B	Tama silt loam, very deep to sand, 2 to 5 percent slopes
749B	Buckhart silt loam, till substratum, 2 to 5 percent slopes
3073A	Ross silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3077A	Huntsville silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3083A	Wabash silty clay, 0 to 2 percent slopes, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
3107A	Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
3284A	Tice silty clay loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3333A	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
3451A	Lawson silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
7134B	Camden silt loam, 2 to 5 percent slopes, rarely flooded
7136A	Brooklyn silt loam, 0 to 2 percent slopes, rarely flooded (where drained)
7198A	Elburn silt loam, 0 to 2 percent slopes, rarely flooded
7199B	Plano silt loam, 2 to 5 percent slopes, rarely flooded
8070A	Beaucoup silty clay loam, 0 to 2 percent slopes, occasionally flooded (where drained)

Soil Survey of Macon County, Illinois

Table 9.--Hydric Soils

(Only those map units that have hydric components are listed. See text for a description of hydric qualities and definitions of the codes in the hydric criteria column)

Map symbol and map unit name	Component	Hydric status	Local landform	Hydric criteria
43A: Ipava silt loam, 0 to 2 percent slopes	Ipava	Not hydric	ground moraine, till plain	---
	Denny	Hydric	depression	2B3
	Sable	Hydric	swale	2B3
45A: Denny silt loam, 0 to 2 percent slopes	Denny	Hydric	depression	2B3
56B: Dana silt loam, 2 to 5 percent slopes	Dana	Not hydric	ground moraine	---
	Drummer	Hydric	swale	2B3
56B2: Dana silt loam, 2 to 5 percent slopes, eroded	Dana	Not hydric	ground moraine	---
	Drummer	Hydric	swale	2B3
56C2: Dana silty clay loam, 5 to 10 percent slopes, eroded	Dana	Not hydric	ground moraine	---
	Drummer	Hydric	swale	2B3
67A: Harpster silty clay loam, 0 to 2 percent slopes	Harpster	Hydric	ground moraine, lake plain, outwash plain, stream terrace, depression	2B3
68A: Sable silty clay loam, 0 to 2 percent slopes	Sable	Hydric	ground moraine, till plain	2B3
86B: Osco silt loam, 2 to 5 percent slopes	Osco	Not hydric	ground moraine, till plain	---
	Sable	Hydric	depression, drainageway	2B3
	Denny	Hydric	depression	2B3
88C: Sparta loamy sand, 5 to 10 percent slopes	Sparta	Not hydric	outwash terrace, stream terrace	---
	Sawmill	Hydric	flood plain	2B3

Soil Survey of Macon County, Illinois

Table 9.--Hydric Soils--Continued

Map symbol and map unit name	Component	Hydric status	Local landform	Hydric criteria
132A: Starks silt loam, 0 to 2 percent slopes	Starks	Not hydric	outwash plain, stream terrace	---
	Drummer	Hydric	swale	2B3
	Brooklyn	Hydric	depression	2B3
	Sawmill	Hydric	flood plain	2B3
134B: Camden silt loam, 2 to 5 percent slopes	Camden	Not hydric	outwash plain, stream terrace	---
	Drummer	Hydric	swale	2B3
136A: Brooklyn silt loam, 0 to 2 percent slopes	Brooklyn	Hydric	outwash plain, stream terrace	2B3
138A: Shiloh silty clay loam, 0 to 2 percent slopes	Shiloh	Hydric	depression, till plain	2B3
148B: Proctor silt loam, 2 to 5 percent slopes	Proctor	Not hydric	outwash plain	---
	Drummer	Hydric	swale	2B3
	Sawmill	Hydric	flood plain	2B3
148C2: Proctor silt loam, 5 to 10 percent slopes, eroded	Proctor	Not hydric	outwash plain, stream terrace	---
	Drummer	Hydric	swale	2B3
	Sawmill	Hydric	flood plain	2B3
152A: Drummer silty clay loam, 0 to 2 percent slopes	Drummer	Hydric	outwash plain, stream terrace	2B3
153A: Pella silty clay loam, 0 to 2 percent slopes	Pella	Hydric	depression, outwash plain, ground moraine	2B3
154A: Flanagan silt loam, 0 to 2 percent slopes	Flanagan	Not hydric	ground moraine	---
	Drummer	Hydric	swale	2B3
	Harpster	Hydric	outwash plain	2B3
171B: Catlin silt loam, 2 to 5 percent slopes	Catlin	Not hydric	ground moraine, end moraine	---
	Drummer	Hydric	outwash plain, ground moraine	2B3
	Harpster	Hydric	swale	2B3

Soil Survey of Macon County, Illinois

Table 9.--Hydric Soils--Continued

Map symbol and map unit name	Component	Hydric status	Local landform	Hydric criteria
198A: Elburn silt loam, 0 to 2 percent slopes	Elburn	Not hydric	outwash plain, stream terrace	---
	Drummer	Hydric	outwash plain, stream terrace	2B3
	Sable	Hydric	swale	2B3
199A: Plano silt loam, 0 to 2 percent slopes	Plano	Not hydric	outwash plain, stream terrace	---
	Drummer	Hydric	outwash plain, ground moraine	2B3
	Sable	Hydric	swale	2B3
199B: Plano silt loam, 2 to 5 percent slopes	Plano	Not hydric	outwash plain, stream terrace	---
	Drummer	Hydric	outwash plain, ground moraine	2B3
	Sable	Hydric	ground moraine	2B3
199C2: Plano silt loam, 5 to 10 percent slopes, eroded	Plano	Not hydric	outwash plain, stream terrace	---
	Drummer	Hydric	outwash plain, ground moraine	2B3
	Sable	Hydric	ground moraine	2B3
206A: Thorp silt loam, 0 to 2 percent slopes	Thorp	Hydric	outwash plain, ground moraine	2B3
233B: Birkbeck silt loam, 2 to 5 percent slopes	Birkbeck	Not hydric	ground moraine, end moraine	---
	Sable	Hydric	swale	2B3
234A: Sunbury silt loam, 0 to 2 percent slopes	Sunbury	Not hydric	ground moraine	---
	Drummer	Hydric	outwash plain, ground moraine	2B3
236A: Sabina silt loam, 0 to 2 percent slopes	Sabina	Not hydric	ground moraine	---
	Drummer	Hydric	swale	2B3
	Sable	Hydric	ground moraine	2B3

Soil Survey of Macon County, Illinois

Table 9.--Hydric Soils--Continued

Map symbol and map unit name	Component	Hydric status	Local landform	Hydric criteria
244A: Hartsburg silty clay loam, 0 to 2 percent slopes	Hartsburg	Hydric	outwash plain, ground moraine	2B3
	Drummer	Hydric	swale	2B3
	Harpster	Hydric	depression	2B3
	Peotone	Hydric	depression	2B3
257A: Clarksdale silt loam, 0 to 2 percent slopes	Clarksdale	Not hydric	outwash plain, till plain	---
	Shiloh	Hydric	ground moraine, swale	2B3
	Denny	Hydric	depression	2B3
279B: Rozetta silt loam, 2 to 5 percent slopes	Rozetta	Not hydric	ground moraine, plain	---
	Sable	Hydric	ground moraine	2B3
291B: Xenia silt loam, 2 to 5 percent slopes	Xenia	Not hydric	ground moraine	---
	Drummer	Hydric	swale	2B3
330A: Peotone silty clay loam, 0 to 2 percent slopes	Peotone	Hydric	depression, closed depression	2B3
348B: Wingate silt loam, 2 to 5 percent slopes	Wingate	Not hydric	ground moraine	---
	Drummer	Hydric	swale	2B3
481A: Raub silt loam, 0 to 2 percent slopes	Raub	Not hydric	ground moraine	---
	Drummer	Hydric	swale	2B3
618C2: Senachwine silt loam, 5 to 10 percent slopes, eroded	Senachwine	Not hydric	ground moraine, end moraine	---
	Sawmill	Hydric	flood plain	2B3
618D2: Senachwine silt loam, 10 to 18 percent slopes, eroded	Senachwine	Not hydric	end moraine, ground moraine	---
	Sawmill	Hydric	flood plain	2B3
618D3: Senachwine clay loam, 10 to 18 percent slopes, severely eroded	Senachwine	Not hydric	end moraine, ground moraine	---
	Sawmill	Hydric	flood plain	2B3

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Table 9.--Hydric Soils--Continued

Map symbol and map unit name	Component	Hydric status	Local landform	Hydric criteria
618F: Senachwine silt loam, 18 to 35 percent slopes	Senachwine	Not hydric	end moraine, ground moraine	---
	Sawmill	Hydric	flood plain	2B3
618G: Senachwine silt loam, 35 to 60 percent slopes	Senachwine	Not hydric	end moraine, ground moraine	---
	Sawmill	Hydric	flood plain	2B3
622B2: Wyanet silt loam, 2 to 5 percent slopes, eroded	Wyanet	Not hydric	ground moraine, end moraine	---
	Drummer	Hydric	swale	2B3
622C2: Wyanet silt loam, 5 to 10 percent slopes, eroded	Wyanet	Not hydric	ground moraine, end moraine	---
	Drummer	Hydric	swale	2B3
675B: Greenbush silt loam, 2 to 5 percent slopes	Greenbush	Not hydric	ground moraine, till plain	---
	Sable	Hydric	ground moraine	2B3
	Denny	Hydric	depression	2B3
679B: Blackberry silt loam, 2 to 5 percent slopes	Blackberry	Not hydric	outwash plain, stream terrace	---
	Drummer	Hydric	swale	2B3
684B: Broadwell silt loam, 2 to 5 percent slopes	Broadwell	Not hydric	knoll, low hill, outwash plain, till plain	---
	Drummer	Hydric	swale	2B3
687C2: Penfield loam, 5 to 10 percent slopes, eroded	Penfield	Not hydric	outwash terrace	---
	Drummer	Hydric	swale	2B3
	Sawmill	Hydric	flood plain	2B3
705B: Buckhart silt loam, 2 to 5 percent slopes	Buckhart	Not hydric	ground moraine, knoll, till plain	---
	Sable	Hydric	ground moraine, depression	2B3
	Denny	Hydric	depression	2B3

Soil Survey of Macon County, Illinois

Table 9.--Hydric Soils--Continued

Map symbol and map unit name	Component	Hydric status	Local landform	Hydric criteria
712A: Spaulding silty clay loam, 0 to 2 percent slopes	Spaulding	Hydric	depression, ground moraine, till plain	2B3
722A: Drummer-Milford silty clay loams, 0 to 2 percent slopes	Drummer	Hydric	outwash plain	2B3
	Milford	Hydric	depression, outwash plain	2B3
737B: Tama silt loam, very deep to sand, 2 to 5 percent slopes	Tama	Not hydric	outwash plain	---
	Sable	Hydric	swale	2B3
749B: Buckhart silt loam, till substratum, 2 to 5 percent slopes	Buckhart	Not hydric	ground moraine	---
	Sable	Hydric	swale	2B3
802B: Orthents, loamy, undulating	Orthents	Not hydric	---	---
	Drummer	Hydric	swale	2B3
802D: Orthents, loamy, rolling	Orthents	Not hydric	---	---
	Drummer	Hydric	swale	2B3
	Sawmill	Hydric	flood plain	2B3
1083A: Wabash silty clay, undrained, 0 to 2 percent slopes, frequently flooded	Wabash	Hydric	flood plain	4,3,2B3
1107A: Sawmill silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded	Sawmill	Hydric	flood plain	4,3,2B3
3073A: Ross silt loam, 0 to 2 percent slopes, frequently flooded	Ross	Not hydric	flood plain, flood-plain step	---
	Sawmill	Hydric	swale	2B3
3077A: Huntsville silt loam, 0 to 2 percent slopes, frequently flooded	Huntsville	Not hydric	flood plain	---
	Sawmill	Hydric	swale	2B3
3083A: Wabash silty clay, 0 to 2 percent slopes, frequently flooded	Wabash	Hydric	flood plain	4,3,2B3
	Sawmill	Hydric	backswamp	2B3,3,4

Soil Survey of Macon County, Illinois

Table 9.--Hydric Soils--Continued

Map symbol and map unit name	Component	Hydric status	Local landform	Hydric criteria
3107A: Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded	Sawmill	Hydric	flood plain	2B3
3284A: Tice silty clay loam, 0 to 2 percent slopes, frequently flooded	Tice	Not hydric	flood plain	---
	Sawmill	Hydric	swale	2B3
	Sawmill	Hydric	backswamp	2B3,3,4
3333A: Wakeland silt loam, 0 to 2 percent slopes, frequently flooded	Wakeland	Not hydric	flood-plain	---
	Sawmill	Hydric	swale	2B3
	Sawmill	Hydric	backswamp	2B3,3,4
3352A: Palms silty clay loam, 0 to 2 percent slopes, frequently flooded, overwash	Palms	Hydric	backswamp, flood plain	1,3
3451A: Lawson silt loam, 0 to 2 percent slopes, frequently flooded	Lawson	Not hydric	flood plain	---
	Sawmill	Hydric	swale	2B3
	Sawmill	Hydric	backswamp	2B3,4,3
7134B: Camden silt loam, 2 to 5 percent slopes, rarely flooded	Camden	Not hydric	stream terrace	---
	Sawmill	Hydric	swale	2B3
7136A: Brooklyn silt loam, 0 to 2 percent slopes, rarely flooded	Brooklyn	Hydric	stream terrace	2B3
	Sawmill	Hydric	swale	2B3
7198A: Elburn silt loam, 0 to 2 percent slopes, rarely flooded	Elburn	Not hydric	stream terrace	---
	Sawmill	Hydric	flood plain	2B3
7199B: Plano silt loam, 2 to 5 percent slopes, rarely flooded	Plano	Not hydric	stream terrace	---
	Brooklyn	Hydric	Stream terrace	2B3
	Sawmill	Hydric	flood plain	2B3
7802B: Orthents, loamy, undulating, rarely flooded	Orthents	Not hydric	---	---
	Drummer	Hydric	swale	2B3
	Sawmill	Hydric	swale	2B3

Soil Survey of Macon County, Illinois

Table 9.--Hydric Soils--Continued

Map symbol and map unit name	Component	Hydric status	Local landform	Hydric criteria
8070A: Beaucoup silty clay loam, 0 to 2 percent slopes, occasionally flooded	Beaucoup Sawmill	Hydric Hydric	flood plain swale	2B3 2B3

Soil Survey of Macon County, Illinois

Table 10.--Forestland Productivity

(Only the soils suitable for production of commercial trees are listed)

Map symbol and soil name	Potential productivity			Suggested trees to plant
	Common trees	Site index	Volume of wood fiber cu ft/ac	
45A: Denny-----	---	---	---	Common hackberry, eastern cottonwood, pin oak, river birch, swamp white oak, sweetgum.
88C: Sparta-----	Eastern white pine----- Jack pine----- Northern red oak----- Red pine-----	--- --- 70 ---	--- --- 57 ---	Bur oak, chinkapin oak, eastern redcedar, honeylocust.
119C2: Elco-----	Black walnut----- Northern red oak----- White oak-----	--- 85 85	--- 72 72	Black oak, bur oak, chinkapin oak, common hackberry, eastern redcedar.
132A: Starks-----	Northern red oak----- White oak----- Black walnut-----	80 80 ---	57 57 ---	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
134B: Camden-----	White oak----- Green ash----- Northern red oak----- Sweetgum----- Tuliptree-----	85 76 85 80 95	72 72 72 86 100	Black walnut, eastern cottonwood, eastern white pine, northern red oak, pecan, pin oak, tuliptree, white oak.
136A: Brooklyn-----	Pin oak----- White oak----- Green ash----- Tuliptree-----	80 --- --- ---	57 --- --- ---	Common hackberry, eastern cottonwood, pin oak, river birch, swamp white oak, sweetgum.
233B: Birkbeck-----	White oak----- Northern red oak-----	86 ---	72 ---	Black walnut, eastern cottonwood, eastern white pine, northern red oak, pecan, pin oak, tuliptree, white oak.
234A: Sunbury-----	---	---	---	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
236A: Sabina-----	White oak----- Black walnut----- Northern red oak-----	80 --- 80	57 --- 57	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.

Soil Survey of Macon County, Illinois

Table 10.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			Suggested trees to plant
	Common trees	Site index	Volume of wood fiber cu ft/ac	
257A:				
Clarksdale-----	White oak-----	80	57	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
	Northern red oak-----	80	57	
279B:				
Rozetta-----	White oak-----	80	57	Black walnut, eastern cottonwood, eastern white pine, northern red oak, pecan, pin oak, tuliptree, white oak.
	Northern red oak-----	80	57	
	Tuliptree-----	90	86	
	Black walnut-----	---	---	
291B:				
Xenia-----	White oak-----	90	72	Black walnut, eastern cottonwood, eastern white pine, northern red oak, pecan, pin oak, tuliptree, white oak.
	Sweetgum-----	76	72	
	Tuliptree-----	98	100	
322C2:				
Russell-----	White oak-----	90	72	Black walnut, eastern cottonwood, eastern white pine, northern red oak, pecan, pin oak, tuliptree, white oak.
	Northern red oak-----	90	72	
	Tuliptree-----	96	100	
348B:				
Wingate-----	White oak-----	90	72	Black walnut, eastern cottonwood, eastern white pine, northern red oak, pecan, pin oak, tuliptree, white oak.
	Sweetgum-----	76	72	
	Tuliptree-----	98	100	
618C2:				
Senachwine-----	White oak-----	90	72	Black walnut, bur oak, eastern white pine, pecan, pin oak, tuliptree.
	Sweetgum-----	76	72	
	Tuliptree-----	98	100	
618D2:				
Senachwine-----	White oak-----	90	72	Black walnut, bur oak, eastern white pine, pecan, pin oak, tuliptree.
	Sweetgum-----	76	72	
	Tuliptree-----	98	100	
618D3:				
Senachwine-----	White oak-----	90	72	Black walnut, bur oak, eastern white pine, pecan, pin oak, tuliptree.
	Sweetgum-----	76	72	
	Tuliptree-----	98	100	
618F:				
Senachwine-----	White oak-----	90	72	Black walnut, bur oak, eastern white pine, pecan, pin oak, tuliptree.
	Sweetgum-----	76	72	
	Tuliptree-----	98	100	
618G:				
Senachwine-----	White oak-----	90	72	Black walnut, bur oak, eastern white pine, pecan, pin oak, tuliptree.
	Sweetgum-----	76	72	
	Tuliptree-----	98	100	

Soil Survey of Macon County, Illinois

Table 10.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			Suggested trees to plant
	Common trees	Site index	Volume of wood fiber cu ft/ac	
675B:				
Greenbush-----	White oak-----	80	57	Black walnut, eastern cottonwood, eastern white pine, northern red oak, pecan, pin oak, tuliptree, white oak.
	Northern red oak-----	80	57	
	Black walnut-----	---	---	
	Tuliptree-----	90	86	
802B:				
Orthents, loamy-----	---	---	---	Black oak, bur oak, chinkapin oak, common hackberry, eastern redcedar.
802D:				
Orthents, loamy-----	---	---	---	Black oak, bur oak, chinkapin oak, common hackberry, eastern redcedar.
1107A:				
Sawmill, undrained-----	Pin oak-----	90	72	Common hackberry, eastern cottonwood, pin oak, river birch, swamp white oak, sweetgum.
	American sycamore-----	90	72	
	Eastern cottonwood-----	---	---	
	Sweetgum-----	---	---	
	Eastern cottonwood-----	---	---	
3073A:				
Ross-----	Black cherry-----	---	---	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
	Black walnut-----	---	---	
	Northern red oak-----	86	72	
	Sugar maple-----	85	57	
	Tuliptree-----	96	100	
	White ash-----	---	---	
	White oak-----	---	---	
3077A:				
Huntsville-----	American sycamore-----	---	---	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
	Cherrybark oak-----	---	---	
	Eastern cottonwood-----	110	157	
	Green ash-----	---	---	
	Sweetgum-----	---	---	
	Tuliptree-----	98	100	
3107A:				
Sawmill-----	Pin oak-----	90	72	Common hackberry, eastern cottonwood, pin oak, river birch, swamp white oak, sweetgum.
	American sycamore-----	---	---	
	Eastern cottonwood-----	---	---	
	Sweetgum-----	---	---	
3284A:				
Tice-----	Pin oak-----	96	72	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
	Eastern cottonwood-----	---	---	
	Sweetgum-----	86	100	
	Tuliptree-----	90	86	
	White ash-----	---	---	
3333A:				
Wakeland-----	White oak-----	---	57	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
	Northern red oak-----	---	---	
	Eastern cottonwood-----	99	---	
	Pin oak-----	90	---	

Soil Survey of Macon County, Illinois

Table 10.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			Suggested trees to plant
	Common trees	Site index	Volume of wood fiber cu ft/ac	
3352A: Palms-----	Black willow-----	---	---	Common persimmon, eastern cottonwood, pin oak, swamp white oak, sweetgum, tamarack.
	Quaking aspen-----	56	57	
	Red maple-----	51	29	
	Silver maple-----	76	29	
	White ash-----	51	29	
3451A: Lawson-----	White ash-----	---	---	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
	Red maple-----	---	---	
	Silver maple-----	70	29	
7134B: Camden, rarely flooded-----	White oak-----	85	72	Black walnut, eastern cottonwood, eastern white pine, northern red oak, pecan, pin oak, tuliptree, white oak.
	Green ash-----	76	72	
	Northern red oak-----	85	72	
	Sweetgum-----	80	86	
	Tuliptree-----	95	100	
7136A: Brooklyn, rarely flooded-----	Pin oak-----	80	57	Common hackberry, eastern cottonwood, pin oak, river birch, swamp white oak, sweetgum.
	White oak-----	---	---	
	Green ash-----	---	---	
	Tuliptree-----	---	---	
7802B: Orthents, loamy, rarely flooded-----	---	---	---	Black oak, bur oak, chinkapin oak, common hackberry, eastern redcedar.
7865: Pits, gravel-----	---	---	---	Bur oak, chinkapin oak, eastern redcedar, honeylocust.
8070A: Beaucoup-----	American sycamore-----	---	---	Common hackberry, eastern cottonwood, pin oak, river birch, swamp white oak, sweetgum.
	Cherrybark oak-----	---	---	
	Eastern cottonwood-----	100	129	
	Pin oak-----	90	72	
	Sweetgum-----	---	---	

Table 11.--Windbreaks and Environmental Plantings

(Absence of an entry indicates that trees generally do not grow to the given height)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
43A: Ipava-----	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
45A: Denny-----	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
56B: Dana-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
56B2: Dana-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
56C2: Dana-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
67A: Harpster-----	Common winterberry, gray dogwood, redosier dogwood	Common pawpaw, nannyberry, roughleaf dogwood, silky dogwood	Arborvitae, bur oak, common hackberry, eastern redcedar, green hawthorn	Carolina poplar, eastern cottonwood	---
68A: Sable-----	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
86B: Osco-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
88C: Sparta-----	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	Cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	Bur oak, chinkapin oak, thornless honeylocust	---	---
119C2: Elco-----	American cranberrybush, American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, gray dogwood, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar	Norway spruce-----	Carolina poplar
132A: Starks-----	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
134B: Camden-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
136A: Brooklyn-----	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
138A: Shiloh-----	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
148B: Proctor-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
148C2: Proctor-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
152A: Drummer-----	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
153A: Pella-----	Common winterberry, gray dogwood, redosier dogwood	Common pawpaw, nannyberry, roughleaf dogwood, silky dogwood	Arborvitae, bur oak, common hackberry, eastern redcedar, green hawthorn	Carolina poplar, eastern cottonwood	---

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
154A: Flanagan-----	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
171B: Catlin-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
198A: Elburn-----	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
199A: Plano-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
199B: Plano-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
199C2: Plano-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
206A: Thorp-----	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
233B: Birkbeck-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
234A: Sunbury-----	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
236A: Sabina-----	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
244A: Hartsburg-----	Common winterberry, gray dogwood, redosier dogwood	Common pawpaw, nannyberry, roughleaf dogwood, silky dogwood	Arborvitae, bur oak, common hackberry, eastern redcedar, green hawthorn	Carolina poplar, eastern cottonwood	---

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
257A: Clarksdale-----	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
279B: Rozetta-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
291B: Xenia-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
322C2: Russell-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
330A: Peotone-----	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
348B: Wingate-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
481A: Raub-----	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
533. Urban land					

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
618C2: Senachwine-----	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, pecan	Norway spruce, common hackberry, pin oak, tuliptree	Carolina poplar, eastern white pine
618D2: Senachwine-----	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, pecan	Norway spruce, common hackberry, pin oak, tuliptree	Carolina poplar, eastern white pine
618D3: Senachwine-----	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, pecan	Norway spruce, common hackberry, pin oak, tuliptree	Carolina poplar, eastern white pine
618F: Senachwine-----	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, blackgum, blue spruce, bur oak, eastern redcedar, pecan	Norway spruce, common hackberry, pin oak, tuliptree	Carolina poplar, eastern white pine

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
618G: Senachwine-----	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, blackgum, blue spruce, bur oak, eastern redcedar, pecan	Norway spruce, common hackberry, pin oak, tuliptree	Carolina poplar, eastern white pine
622B2: Wyanet-----	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, pecan	Norway spruce, common hackberry, pin oak, tuliptree	Carolina poplar, eastern white pine
622C2: Wyanet-----	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, pecan	Norway spruce, common hackberry, pin oak, tuliptree	Carolina poplar, eastern white pine
675B: Greenbush-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
679B: Blackberry-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
684B: Broadwell-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
687C2: Penfield-----	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, pecan	Norway spruce, common hackberry, pin oak, tuliptree	Carolina poplar, eastern white pine
705B: Buckhart-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
712A: Spaulding-----	Common winterberry, gray dogwood, redosier dogwood	Common pawpaw, nannyberry, roughleaf dogwood, silky dogwood	Arborvitae, bur oak, common hackberry, eastern redcedar, green hawthorn	Carolina poplar, eastern cottonwood	---
722A: Drummer-----	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
Milford-----	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
737B: Tama, very deep to sand	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
749B: Buckhart, till substratum-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
802B: Orthents, loamy-----	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar	Norway spruce-----	Carolina poplar
802D: Orthents, loamy-----	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar	Norway spruce-----	Carolina poplar
865. Pits, gravel					

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
1083A: Wabash, undrained-----	Black chokeberry, gray dogwood	Cockspur hawthorn, nannyberry	---	---	---
1107A: Sawmill, undrained-----	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3073A: Ross-----	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3077A: Huntsville-----	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
3083A: Wabash-----	Black chokeberry, gray dogwood	Cockspur hawthorn, nannyberry	---	---	---
3107A: Sawmill-----	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3284A: Tice-----	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3333A: Wakeland-----	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
3352A: Palms-----	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Common serviceberry, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, common persimmon	Pin oak, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood
3451A: Lawson-----	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
7134B: Camden, rarely flooded--	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
7136A: Brooklyn, rarely flooded	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
7198A: Elburn-----	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
7199B: Plano-----	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 11.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
7802B: Orthents, loamy, rarely flooded-----	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar	Norway spruce-----	Carolina poplar
7865. Pits, gravel					
8070A: Beaucoup-----	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Soil Survey of Macon County, Illinois

Table 12a.--Recreational Development

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
43A: Ipava-----	Somewhat limited Depth to saturated zone Slow water movement	0.98 0.21	Somewhat limited Depth to saturated zone Slow water movement	0.75 0.21	Somewhat limited Depth to saturated zone Slow water movement	0.98 0.21
45A: Denny-----	Very limited Depth to saturated zone Ponding Slow water movement	1.00 1.00 0.96	Very limited Ponding Depth to saturated zone Slow water movement	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Slow water movement	1.00 1.00 0.96
56B: Dana-----	Not limited		Not limited		Somewhat limited Slope	0.50
56B2: Dana-----	Somewhat limited Depth to saturated zone	0.07	Somewhat limited Depth to saturated zone	0.03	Somewhat limited Slope Depth to saturated zone	0.50 0.07
56C2: Dana-----	Somewhat limited Depth to saturated zone	0.39	Somewhat limited Depth to saturated zone	0.19	Very limited Slope Depth to saturated zone	1.00 0.39
67A: Harpster-----	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
68A: Sable-----	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
86B: Osco-----	Not limited		Not limited		Somewhat limited Slope	0.28
88C: Sparta-----	Somewhat limited Too sandy	0.68	Somewhat limited Too sandy	0.68	Very limited Slope Too sandy	1.00 0.68

Soil Survey of Macon County, Illinois

Table 12a.--Recreational Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
119C2: Elco-----	Somewhat limited Slow water movement	0.43	Somewhat limited Slow water movement	0.43	Very limited Slope Slow water movement	1.00 0.43
132A: Starks-----	Somewhat limited Depth to saturated zone Slow water movement	0.81 0.21	Somewhat limited Depth to saturated zone Slow water movement	0.48 0.21	Somewhat limited Depth to saturated zone Slow water movement	0.81 0.21
134B: Camden-----	Not limited		Not limited		Somewhat limited Slope	0.28
136A: Brooklyn-----	Very limited Depth to saturated zone Ponding Slow water movement	1.00 1.00 0.96	Very limited Ponding Depth to saturated zone Slow water movement	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Slow water movement	1.00 1.00 0.96
138A: Shiloh-----	Very limited Depth to saturated zone Ponding Slow water movement	1.00 1.00 0.21	Very limited Ponding Depth to saturated zone Slow water movement	1.00 1.00 0.21	Very limited Depth to saturated zone Ponding Slow water movement	1.00 1.00 0.21
148B: Proctor-----	Not limited		Not limited		Somewhat limited Slope	0.50
148C2: Proctor-----	Not limited		Not limited		Very limited Slope	1.00
152A: Drummer-----	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
153A: Pella-----	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
154A: Flanagan-----	Somewhat limited Depth to saturated zone Slow water movement	0.98 0.21	Somewhat limited Depth to saturated zone Slow water movement	0.75 0.21	Somewhat limited Depth to saturated zone Slow water movement	0.98 0.21

Soil Survey of Macon County, Illinois

Table 12a.--Recreational Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
171B: Catlin-----	Not limited		Not limited		Somewhat limited Slope	0.12
198A: Elburn-----	Somewhat limited Depth to saturated zone	0.98	Somewhat limited Depth to saturated zone	0.75	Somewhat limited Depth to saturated zone	0.98
199A: Plano-----	Not limited		Not limited		Not limited	
199B: Plano-----	Not limited		Not limited		Somewhat limited Slope	0.28
199C2: Plano-----	Not limited		Not limited		Very limited Slope	1.00
206A: Thorp-----	Very limited Depth to saturated zone Ponding Slow water movement	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Slow water movement	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Slow water movement	1.00 1.00 0.96
233B: Birkbeck-----	Not limited		Not limited		Somewhat limited Slope	0.28
234A: Sunbury-----	Very limited Depth to saturated zone Slow water movement	1.00 0.21	Somewhat limited Depth to saturated zone Slow water movement	0.94 0.21	Very limited Depth to saturated zone Slow water movement	1.00 0.21
236A: Sabina-----	Very limited Depth to saturated zone Slow water movement	1.00 0.21	Somewhat limited Depth to saturated zone Slow water movement	0.96 0.21	Very limited Depth to saturated zone Slow water movement	1.00 0.21
244A: Hartsburg-----	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
257A: Clarksdale-----	Very limited Depth to saturated zone Slow water movement	1.00 0.21	Somewhat limited Depth to saturated zone Slow water movement	0.83 0.21	Very limited Depth to saturated zone Slow water movement	1.00 0.21

Soil Survey of Macon County, Illinois

Table 12a.--Recreational Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
279B: Rozetta-----	Not limited		Not limited		Somewhat limited Slope	0.28
291B: Xenia-----	Somewhat limited Depth to saturated zone	0.98	Somewhat limited Depth to saturated zone	0.75	Somewhat limited Depth to saturated zone Slope	0.98 0.50
322C2: Russell-----	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Slope	1.00
330A: Peotone-----	Very limited Depth to saturated zone Ponding Slow water movement	1.00 1.00 0.21	Very limited Ponding Depth to saturated zone Slow water movement	1.00 1.00 0.21	Very limited Depth to saturated zone Ponding Slow water movement	1.00 1.00 0.21
348B: Wingate-----	Somewhat limited Depth to saturated zone	0.07	Somewhat limited Depth to saturated zone	0.03	Somewhat limited Slope Depth to saturated zone	0.50 0.07
481A: Raub-----	Somewhat limited Depth to saturated zone	0.98	Somewhat limited Depth to saturated zone	0.75	Somewhat limited Depth to saturated zone	0.98
533: Urban land-----	Not rated		Not rated		Not rated	
618C2: Senachwine-----	Somewhat limited Slow water movement Slope	0.21 0.01	Somewhat limited Slow water movement Slope	0.21 0.01	Very limited Slope Slow water movement	1.00 0.21
618D2: Senachwine-----	Somewhat limited Slope Slow water movement	0.96 0.21	Somewhat limited Slope Slow water movement	0.96 0.21	Very limited Slope Slow water movement	1.00 0.21
618D3: Senachwine-----	Somewhat limited Slope Slow water movement	0.96 0.21	Somewhat limited Slope Slow water movement	0.96 0.21	Very limited Slope Slow water movement	1.00 0.21
618F: Senachwine-----	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00

Soil Survey of Macon County, Illinois

Table 12a.--Recreational Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
618G: Senachwine-----	Very limited Slope Slow water movement	1.00 0.21	Very limited Slope Slow water movement	1.00 0.21	Very limited Slope Slow water movement	1.00 0.21
622B2: Wyanet-----	Somewhat limited Slow water movement	0.21	Somewhat limited Slow water movement	0.21	Somewhat limited Slope Slow water movement	0.28 0.21
622C2: Wyanet-----	Somewhat limited Slow water movement	0.21	Somewhat limited Slow water movement	0.21	Very limited Slope Slow water movement	1.00 0.21
675B: Greenbush-----	Not limited		Not limited		Somewhat limited Slope	0.28
679B: Blackberry-----	Not limited		Not limited		Somewhat limited Slope	0.28
684B: Broadwell-----	Not limited		Not limited		Somewhat limited Slope	0.28
687C2: Penfield-----	Not limited		Not limited		Very limited Slope	1.00
705B: Buckhart-----	Not limited		Not limited		Somewhat limited Slope	0.28
712A: Spaulding-----	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
722A: Drummer-----	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Milford-----	Very limited Depth to saturated zone Ponding Slow water movement	1.00 1.00 0.21	Very limited Ponding Depth to saturated zone Slow water movement	1.00 1.00 0.21	Very limited Depth to saturated zone Ponding Slow water movement	1.00 1.00 0.21
737B: Tama, very deep to sand-----	Not limited		Not limited		Somewhat limited Slope	0.28

Soil Survey of Macon County, Illinois

Table 12a.--Recreational Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
749B: Buckhart, till substratum-----	Not limited		Not limited		Somewhat limited Slope	0.28
802B: Orthents, loamy----	Somewhat limited Slow water movement	0.21	Somewhat limited Slow water movement	0.21	Somewhat limited Slope Slow water movement	0.50 0.21
802D: Orthents, loamy----	Somewhat limited Slope Slow water movement	0.37 0.21	Somewhat limited Slope Slow water movement	0.37 0.21	Very limited Slope Slow water movement	1.00 0.21
865: Pits, gravel-----	Not rated		Not rated		Not rated	
1083A: Wabash, undrained---	Very limited Depth to saturated zone Flooding Ponding Slow water movement Too clayey	1.00 1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Slow water movement Too clayey Flooding	1.00 1.00 1.00 1.00 0.40	Very limited Slow water movement Depth to saturated zone Flooding Ponding Too clayey	1.00 1.00 1.00 1.00 1.00
1107A: Sawmill, undrained--	Very limited Depth to saturated zone Flooding Ponding	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 0.40	Very limited Depth to saturated zone Flooding Ponding	1.00 1.00 1.00
3073A: Ross-----	Very limited Flooding	1.00	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
3077A: Huntsville-----	Very limited Flooding	1.00	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
3083A: Wabash-----	Very limited Depth to saturated zone Flooding Ponding Slow water movement Too clayey	1.00 1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Slow water movement Too clayey Flooding	1.00 1.00 1.00 1.00 0.40	Very limited Slow water movement Depth to saturated zone Flooding Ponding Too clayey	1.00 1.00 1.00 1.00 1.00
3107A: Sawmill-----	Very limited Depth to saturated zone Flooding Ponding	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 0.40	Very limited Depth to saturated zone Flooding Ponding	1.00 1.00 1.00

Soil Survey of Macon County, Illinois

Table 12a.--Recreational Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3284A: Tice-----	Very limited Flooding Depth to saturated zone	1.00 0.81	Somewhat limited Depth to saturated zone Flooding	0.48 0.40	Very limited Flooding Depth to saturated zone	1.00 0.81
3333A: Wakeland-----	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 1.00
3352A: Palms-----	Very limited Depth to saturated zone Flooding Ponding	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 0.40	Very limited Depth to saturated zone Flooding Ponding	1.00 1.00 1.00
3451A: Lawson-----	Very limited Flooding	1.00	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
7134B: Camden, rarely flooded-----	Very limited Flooding	1.00	Not limited		Somewhat limited Slope	0.03
7136A: Brooklyn, rarely flooded-----	Very limited Depth to saturated zone Flooding Ponding Slow water movement	1.00 1.00 1.00 1.00 0.96	Very limited Ponding Depth to saturated zone Slow water movement	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Slow water movement	1.00 1.00 0.96
7198A: Elburn-----	Very limited Flooding Depth to saturated zone	1.00 0.98	Somewhat limited Depth to saturated zone	0.75	Somewhat limited Depth to saturated zone	0.98
7199B: Plano-----	Very limited Flooding	1.00	Not limited		Somewhat limited Slope	0.28
7802B: Orthents, loamy, rarely flooded----	Very limited Flooding Slow water movement	1.00 0.21	Somewhat limited Slow water movement	0.21	Somewhat limited Slope Slow water movement	0.50 0.21
7865: Pits, gravel-----	Not rated		Not rated		Not rated	

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Table 12a.--Recreational Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8070A: Beaucoup-----	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Slow water	0.21	Flooding	0.60
	Slow water movement	0.21	movement		Slow water movement	0.21

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Table 12b.--Recreational Development

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
43A: Ipava-----	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone	0.75
45A: Denny-----	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
56B: Dana-----	Not limited		Not limited		Not limited	
56B2: Dana-----	Not limited		Not limited		Somewhat limited Depth to saturated zone	0.03
56C2: Dana-----	Not limited		Not limited		Somewhat limited Depth to saturated zone	0.19
67A: Harpster-----	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
68A: Sable-----	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
86B: Osco-----	Not limited		Not limited		Not limited	
88C: Sparta-----	Somewhat limited Too sandy	0.68	Somewhat limited Too sandy	0.68	Somewhat limited Droughty	0.71
119C2: Elco-----	Not limited		Not limited		Not limited	
132A: Starks-----	Somewhat limited Depth to saturated zone	0.11	Somewhat limited Depth to saturated zone	0.11	Somewhat limited Depth to saturated zone	0.48
134B: Camden-----	Not limited		Not limited		Not limited	

Soil Survey of Macon County, Illinois

Table 12b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
136A: Brooklyn-----	Very limited Depth to saturated zone Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
138A: Shiloh-----	Very limited Depth to saturated zone Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
148B: Proctor-----	Not limited		Not limited		Not limited	
148C2: Proctor-----	Not limited		Not limited		Not limited	
152A: Drummer-----	Very limited Depth to saturated zone Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
153A: Pella-----	Very limited Depth to saturated zone Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
154A: Flanagan-----	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone	0.75
171B: Catlin-----	Not limited		Not limited		Not limited	
198A: Elburn-----	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone	0.75
199A: Plano-----	Not limited		Not limited		Not limited	
199B: Plano-----	Not limited		Not limited		Not limited	
199C2: Plano-----	Not limited		Not limited		Not limited	
206A: Thorp-----	Very limited Depth to saturated zone Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
233B: Birkbeck-----	Not limited		Not limited		Not limited	

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Table 12b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
234A: Sunbury-----	Somewhat limited Depth to saturated zone	0.86	Somewhat limited Depth to saturated zone	0.86	Somewhat limited Depth to saturated zone	0.94
236A: Sabina-----	Somewhat limited Depth to saturated zone	0.92	Somewhat limited Depth to saturated zone	0.92	Somewhat limited Depth to saturated zone	0.96
244A: Hartsburg-----	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
257A: Clarksdale-----	Somewhat limited Depth to saturated zone	0.62	Somewhat limited Depth to saturated zone	0.62	Somewhat limited Depth to saturated zone	0.83
279B: Rozetta-----	Not limited		Not limited		Not limited	
291B: Xenia-----	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone	0.75
322C2: Russell-----	Not limited		Not limited		Somewhat limited Slope	0.01
330A: Peotone-----	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
348B: Wingate-----	Not limited		Not limited		Somewhat limited Depth to saturated zone	0.03
481A: Raub-----	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone	0.75
533: Urban land-----	Not rated		Not rated		Not rated	
618C2: Senachwine-----	Not limited		Not limited		Somewhat limited Slope	0.01
618D2: Senachwine-----	Very limited Water erosion	1.00	Very limited Water erosion	1.00	Somewhat limited Slope	0.96

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Table 12b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
618D3: Senachwine-----	Not limited		Not limited		Somewhat limited Slope	0.96
618F: Senachwine-----	Very limited Water erosion Slope	1.00 1.00	Very limited Water erosion Slope	1.00 0.04	Very limited Slope	1.00
618G: Senachwine-----	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00
622B2: Wyanet-----	Not limited		Not limited		Not limited	
622C2: Wyanet-----	Not limited		Not limited		Not limited	
675B: Greenbush-----	Not limited		Not limited		Not limited	
679B: Blackberry-----	Not limited		Not limited		Not limited	
684B: Broadwell-----	Not limited		Not limited		Not limited	
687C2: Penfield-----	Not limited		Not limited		Not limited	
705B: Buckhart-----	Not limited		Not limited		Not limited	
712A: Spaulding-----	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
722A: Drummer-----	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Milford-----	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
737B: Tama, very deep to sand-----	Not limited		Not limited		Not limited	
749B: Buckhart, till substratum-----	Not limited		Not limited		Not limited	

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Table 12b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
802B: Orthents, loamy-----	Not limited		Not limited		Not limited	
802D: Orthents, loamy-----	Very limited Water erosion	1.00	Very limited Water erosion	1.00	Somewhat limited Slope	0.37
865: Pits, gravel-----	Not rated		Not rated		Not rated	
1083A: Wabash, undrained---	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Ponding Flooding	1.00 1.00
	Ponding	1.00	Ponding	1.00	Depth to	1.00
	Too clayey	1.00	Too clayey	1.00	saturated zone	
	Flooding	0.40	Flooding	0.40	Too clayey	1.00
1107A: Sawmill, undrained--	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Ponding Flooding	1.00 1.00
	Ponding	1.00	Ponding	1.00	Depth to	1.00
	Flooding	0.40	Flooding	0.40	saturated zone	
3073A: Ross-----	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
3077A: Huntsville-----	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
3083A: Wabash-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Ponding Flooding	1.00 1.00
	Ponding	1.00	Ponding	1.00	Depth to	1.00
	Too clayey	1.00	Too clayey	1.00	saturated zone	
	Flooding	0.40	Flooding	0.40	Too clayey	1.00
3107A: Sawmill-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Ponding Flooding	1.00 1.00
	Ponding	1.00	Ponding	1.00	Depth to	1.00
	Flooding	0.40	Flooding	0.40	saturated zone	
3284A: Tice-----	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
	Depth to	0.11	Depth to	0.11	Depth to	0.48
	saturated zone		saturated zone		saturated zone	
3333A: Wakeland-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to	1.00
					saturated zone	

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Table 12b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3352A: Palms-----	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
3451A: Lawson-----	Somewhat limited		Somewhat limited		Very limited	
	Flooding	0.40	Flooding	0.40	Flooding	1.00
7134B: Camden, rarely flooded-----	Not limited		Not limited		Not limited	
7136A: Brooklyn, rarely flooded-----	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
7198A: Elburn-----	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
7199B: Plano-----	Not limited		Not limited		Not limited	
7802B: Orthents, loamy, rarely flooded----	Not limited		Not limited		Not limited	
7865: Pits, gravel-----	Not rated		Not rated		Not rated	
8070A: Beaucoup-----	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
					Flooding	0.60

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Table 13.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
43A: Ipava-----	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
45A: Denny-----	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
56B: Dana-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
56B2: Dana-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
56C2: Dana-----	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
67A: Harpster-----	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
68A: Sable-----	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
86B: Osco-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
88C: Sparta-----	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
119C2: Elco-----	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
132A: Starks-----	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
134B: Camden-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
136A: Brooklyn-----	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
138A: Shiloh-----	Poor	Poor	Poor	Poor	Very poor.	Good	Good	Poor	Poor	Good.
148B: Proctor-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
148C2: Proctor-----	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

Soil Survey of Macon County, Illinois

Table 13.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
152A: Drummer-----	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
153A: Pella-----	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
154A: Flanagan-----	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
171B: Catlin-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
198A: Elburn-----	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
199A: Plano-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
199B: Plano-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
199C2: Plano-----	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
206A: Thorp-----	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
233B: Birkbeck-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
234A: Sunbury-----	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
236A: Sabina-----	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
244A: Hartsburg-----	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
257A: Clarksdale-----	Fair	Good	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
279B: Rozetta-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
291B: Xenia-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
322C2: Russell-----	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
330A: Peotone-----	Poor	Poor	Poor	Poor	Very poor.	Good	Good	Poor	Poor	Good.

Soil Survey of Macon County, Illinois

Table 13.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
348B: Wingate-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
481A: Raub-----	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
533. Urban land										
618C2: Senachwine-----	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
618D2: Senachwine-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
618D3: Senachwine-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
618F: Senachwine-----	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
618G: Senachwine-----	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
622B2: Wyanet-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
622C2: Wyanet-----	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
675B: Greenbush-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
679B: Blackberry-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
684B: Broadwell-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
687C2: Penfield-----	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
705B: Buckhart-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
712A: Spaulding-----	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.

Soil Survey of Macon County, Illinois

Table 13.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
722A: Drummer-----	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
Milford-----	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
737B: Tama, very deep to sand-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
749B: Buckhart, till substratum-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
802B: Orthents, loamy---	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
802D: Orthents, loamy---	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
865. Pits, gravel										
1083A: Wabash, undrained	Very poor.	Poor	Poor	Poor	Very poor.	Fair	Good	Poor	Poor	Fair.
1107A: Sawmill, undrained	Very poor.	Poor	Poor	Poor	Very poor.	Good	Good	Poor	Poor	Good.
3073A: Ross-----	Poor	Fair	Fair	Good	Fair	Fair	Very poor.	Fair	Good	Poor.
3077A: Huntsville-----	Poor	Fair	Fair	Good	Fair	Fair	Very poor.	Fair	Good	Poor.
3083A: Wabash-----	Poor	Poor	Poor	Poor	Very poor.	Fair	Good	Poor	Poor	Fair.
3107A: Sawmill-----	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
3284A: Tice-----	Poor	Fair	Fair	Good	Fair	Good	Fair	Fair	Good	Fair.
3333A: Wakeland-----	Poor	Fair	Fair	Good	Fair	Good	Fair	Fair	Good	Fair.
3352A: Palms-----	Very poor.	Poor	Poor	Poor	Very poor.	Good	Good	Poor	Poor	Good.
3451A: Lawson-----	Poor	Fair	Fair	Good	Fair	Good	Fair	Fair	Good	Fair.

Soil Survey of Macon County, Illinois

Table 13.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
7134B: Camden, rarely flooded-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
7136A: Brooklyn, rarely flooded-----	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
7198A: Elburn-----	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
7199B: Plano-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
7802B: Orthents, loamy, rarely flooded---	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
7865. Pits, gravel										
8070A: Beaucoup-----	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.

Soil Survey of Macon County, Illinois

Table 14a.--Building Site Development

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
43A: Ipava-----	Very limited Shrink-swell Depth to saturated zone	1.00 0.98	Very limited Depth to saturated zone Shrink-swell	1.00 0.50	Very limited Shrink-swell Depth to saturated zone	1.00 0.98
45A: Denny-----	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
56B: Dana-----	Somewhat limited Shrink-swell	0.50	Somewhat limited Depth to saturated zone Shrink-swell	0.99 0.50	Somewhat limited Shrink-swell	0.50
56B2: Dana-----	Somewhat limited Shrink-swell Depth to saturated zone	0.50 0.07	Very limited Depth to saturated zone Shrink-swell	1.00 0.50	Somewhat limited Shrink-swell Depth to saturated zone	0.50 0.07
56C2: Dana-----	Somewhat limited Shrink-swell Depth to saturated zone	0.50 0.39	Very limited Depth to saturated zone	1.00	Somewhat limited Slope Shrink-swell Depth to saturated zone	0.97 0.50 0.39
67A: Harpster-----	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.50
68A: Sable-----	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.50
86B: Osco-----	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Depth to saturated zone	0.50 0.15	Somewhat limited Shrink-swell	0.50
88C: Sparta-----	Not limited		Not limited		Somewhat limited Slope	0.88

Soil Survey of Macon County, Illinois

Table 14a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
119C2: Elco-----	Somewhat limited Shrink-swell	0.50	Very limited Shrink-swell Depth to saturated zone	1.00 0.99	Somewhat limited Slope Shrink-swell	0.97 0.50
132A: Starks-----	Somewhat limited Depth to saturated zone Shrink-swell	0.81 0.50	Very limited Depth to saturated zone Shrink-swell	1.00 0.50	Somewhat limited Depth to saturated zone Shrink-swell	0.81 0.50
134B: Camden-----	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
136A: Brooklyn-----	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
138A: Shiloh-----	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
148B: Proctor-----	Not limited		Not limited		Not limited	
148C2: Proctor-----	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Slope Shrink-swell	0.97 0.50
152A: Drummer-----	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.50
153A: Pella-----	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
154A: Flanagan-----	Very limited Shrink-swell Depth to saturated zone	1.00 0.98	Very limited Depth to saturated zone	1.00	Very limited Shrink-swell Depth to saturated zone	1.00 0.98
171B: Catlin-----	Somewhat limited Shrink-swell	0.50	Somewhat limited Depth to saturated zone	0.99	Somewhat limited Shrink-swell	0.50

Soil Survey of Macon County, Illinois

Table 14a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
198A: Elburn-----	Somewhat limited Depth to saturated zone Shrink-swell	0.98 0.50	Very limited Depth to saturated zone Shrink-swell	1.00 0.50	Somewhat limited Depth to saturated zone Shrink-swell	0.98 0.50
199A: Plano-----	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
199B: Plano-----	Somewhat limited Shrink-swell	0.27	Somewhat limited Shrink-swell	0.27	Somewhat limited Shrink-swell	0.27
199C2: Plano-----	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Slope Shrink-swell	0.97 0.50
206A: Thorp-----	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.50
233B: Birkbeck-----	Somewhat limited Shrink-swell	0.92	Somewhat limited Depth to saturated zone Shrink-swell	0.99 0.92	Somewhat limited Shrink-swell	0.92
234A: Sunbury-----	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00
236A: Sabina-----	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00
244A: Hartsburg-----	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.50
257A: Clarksdale-----	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00

Soil Survey of Macon County, Illinois

Table 14a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
279B: Rozetta-----	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Depth to saturated zone	0.50 0.15	Somewhat limited Shrink-swell	0.50
291B: Xenia-----	Somewhat limited Depth to saturated zone Shrink-swell	0.98 0.50	Very limited Depth to saturated zone Shrink-swell	1.00 0.50	Somewhat limited Depth to saturated zone Shrink-swell	0.98 0.50
322C2: Russell-----	Somewhat limited Shrink-swell Slope	0.50 0.01	Somewhat limited Shrink-swell Slope	0.50 0.01	Very limited Slope Shrink-swell	1.00 0.50
330A: Peotone-----	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
348B: Wingate-----	Somewhat limited Shrink-swell Depth to saturated zone	0.50 0.07	Very limited Depth to saturated zone Shrink-swell	1.00 0.50	Somewhat limited Shrink-swell Depth to saturated zone	0.50 0.07
481A: Raub-----	Somewhat limited Depth to saturated zone Shrink-swell	0.98 0.50	Very limited Depth to saturated zone Shrink-swell	1.00 0.50	Somewhat limited Depth to saturated zone Shrink-swell	0.98 0.50
533: Urban land-----	Not rated		Not rated		Not rated	
618C2: Senachwine-----	Somewhat limited Shrink-swell Slope	0.50 0.01	Somewhat limited Slope	0.01	Very limited Slope Shrink-swell	1.00 0.50
618D2: Senachwine-----	Somewhat limited Slope Shrink-swell	0.96 0.50	Somewhat limited Slope	0.96	Very limited Slope Shrink-swell	1.00 0.50
618D3: Senachwine-----	Somewhat limited Slope Shrink-swell	0.96 0.50	Somewhat limited Slope	0.96	Very limited Slope Shrink-swell	1.00 0.50
618F: Senachwine-----	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope	1.00	Very limited Slope Shrink-swell	1.00 0.50

Soil Survey of Macon County, Illinois

Table 14a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
618G: Senachwine-----	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope	1.00	Very limited Slope Shrink-swell	1.00 0.50
622B2: Wyanet-----	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
622C2: Wyanet-----	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Slope Shrink-swell	0.97 0.50
675B: Greenbush-----	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Depth to saturated zone	0.50 0.15	Somewhat limited Shrink-swell	0.50
679B: Blackberry-----	Somewhat limited Shrink-swell	0.50	Somewhat limited Depth to saturated zone Shrink-swell	0.99 0.50	Somewhat limited Shrink-swell	0.50
684B: Broadwell-----	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
687C2: Penfield-----	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Slope Shrink-swell	0.88 0.50
705B: Buckhart-----	Somewhat limited Shrink-swell	0.50	Somewhat limited Depth to saturated zone Shrink-swell	0.99 0.50	Somewhat limited Shrink-swell	0.50
712A: Spaulding-----	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.50
722A: Drummer-----	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.50
Milford-----	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.50

Soil Survey of Macon County, Illinois

Table 14a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
737B: Tama, very deep to sand-----	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
749B: Buckhart, till substratum-----	Somewhat limited Shrink-swell	0.50	Somewhat limited Depth to saturated zone Shrink-swell	0.99 0.50	Somewhat limited Shrink-swell	0.50
802B: Orthents, loamy----	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Depth to saturated zone	0.50 0.47	Somewhat limited Shrink-swell	0.50
802D: Orthents, loamy----	Somewhat limited Shrink-swell Slope	0.50 0.37	Somewhat limited Shrink-swell Depth to saturated zone Slope	0.50 0.47 0.37	Very limited Slope Shrink-swell	1.00 0.50
865: Pits, gravel-----	Not rated		Not rated		Not rated	
1083A: Wabash, undrained---	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00 1.00
1107A: Sawmill, undrained--	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00 0.50	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00 0.50	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00 0.50
3073A: Ross-----	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.35	Very limited Flooding	1.00
3077A: Huntsville-----	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.19	Very limited Flooding	1.00

Soil Survey of Macon County, Illinois

Table 14a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3083A: Wabash-----	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
3107A: Sawmill-----	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
3284A: Tice-----	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	0.81	Depth to saturated zone	1.00	Depth to saturated zone	0.81
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
3333A: Wakeland-----	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
3352A: Palms-----	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
3451A: Lawson-----	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	0.99		
7134B: Camden, rarely flooded-----	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
7136A: Brooklyn, rarely flooded-----	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00

Soil Survey of Macon County, Illinois

Table 14a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7198A: Elburn-----	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to	0.98	Depth to	1.00	Depth to	0.98
	saturated zone		saturated zone		saturated zone	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
7199B: Plano-----	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
7802B: Orthents, loamy, rarely flooded----	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
			Depth to	0.47		
			saturated zone			
7865: Pits, gravel-----	Not rated		Not rated		Not rated	
8070A: Beaucoup-----	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to	1.00	Depth to	1.00	Depth to	1.00
	saturated zone		saturated zone		saturated zone	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Soil Survey of Macon County, Illinois

Table 14b.--Building Site Development

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
43A: Ipava-----	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to	1.00	Depth to	0.75
	Low strength	1.00	saturated zone		saturated zone	
	Shrink-swell	1.00	Cutbanks cave	0.10		
	Depth to	0.75				
	saturated zone					
45A: Denny-----	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to	1.00	Depth to	1.00	Depth to	1.00
	saturated zone		saturated zone		saturated zone	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	1.00				
56B: Dana-----	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to	0.99		
	Low strength	1.00	saturated zone			
	Shrink-swell	0.50	Cutbanks cave	0.10		
56B2: Dana-----	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to	1.00	Depth to	0.03
	Low strength	1.00	saturated zone		saturated zone	
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Depth to	0.03				
	saturated zone					
56C2: Dana-----	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to	1.00	Depth to	0.19
	Low strength	1.00	saturated zone		saturated zone	
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Depth to	0.19				
	saturated zone					
67A: Harpster-----	Very limited		Very limited		Very limited	
	Depth to	1.00	Depth to	1.00	Depth to	1.00
	saturated zone		saturated zone		saturated zone	
	Frost action	1.00	Ponding	1.00	Ponding	1.00
	Low strength	1.00	Cutbanks cave	0.10		
	Ponding	1.00				
	Shrink-swell	0.50				

Soil Survey of Macon County, Illinois

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
68A: Sable-----	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to	1.00	Depth to	1.00	Depth to	1.00
	saturated zone		saturated zone		saturated zone	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
86B: Osco-----	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to	0.15		
	Low strength	1.00	saturated zone			
	Shrink-swell	0.50	Cutbanks cave	0.10		
88C: Sparta-----	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.71
119C2: Elco-----	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to	0.99		
	Low strength	1.00	saturated zone			
	Shrink-swell	0.50	Cutbanks cave	0.10		
132A: Starks-----	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to	1.00	Depth to	0.48
	Low strength	1.00	saturated zone		saturated zone	
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Depth to	0.48				
	saturated zone					
134B: Camden-----	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
136A: Brooklyn-----	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to	1.00	Depth to	1.00	Depth to	1.00
	saturated zone		saturated zone		saturated zone	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00	Too clayey	0.01		
	Shrink-swell	1.00				
138A: Shiloh-----	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to	1.00	Depth to	1.00	Depth to	1.00
	saturated zone		saturated zone		saturated zone	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00	Too clayey	0.02		
	Shrink-swell	1.00				
148B: Proctor-----	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				

Soil Survey of Macon County, Illinois

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets	Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features
148C2: Proctor-----	Very limited Frost action Low strength Shrink-swell	 1.00 1.00 0.50	Somewhat limited Cutbanks cave	 0.10	Not limited
152A: Drummer-----	Very limited Ponding Depth to saturated zone Frost action Low strength Shrink-swell	 1.00 1.00 1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Cutbanks cave	 1.00 1.00 0.10	Very limited Ponding Depth to saturated zone
153A: Pella-----	Very limited Ponding Depth to saturated zone Frost action Low strength	 1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Cutbanks cave	 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone
154A: Flanagan-----	Very limited Frost action Low strength Shrink-swell Depth to saturated zone	 1.00 1.00 1.00 0.75	Very limited Depth to saturated zone Cutbanks cave	 1.00 0.10	Somewhat limited Depth to saturated zone
171B: Catlin-----	Very limited Frost action Low strength Shrink-swell	 1.00 1.00 0.50	Somewhat limited Depth to saturated zone Cutbanks cave	 0.99 0.10	Not limited
198A: Elburn-----	Very limited Frost action Low strength Depth to saturated zone Shrink-swell	 1.00 1.00 0.75 0.50	Very limited Depth to saturated zone Cutbanks cave	 1.00 1.00	Somewhat limited Depth to saturated zone
199A: Plano-----	Very limited Frost action Low strength Shrink-swell	 1.00 1.00 0.50	Very limited Cutbanks cave	 1.00	Not limited
199B: Plano-----	Very limited Frost action Low strength Shrink-swell	 1.00 1.00 0.27	Very limited Cutbanks cave	 1.00	Not limited

Soil Survey of Macon County, Illinois

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
199C2: Plano-----	Very limited Frost action Low strength Shrink-swell	 1.00 1.00 0.50	Very limited Cutbanks cave	 1.00	Not limited	
206A: Thorp-----	Very limited Depth to saturated zone Frost action Low strength Ponding Shrink-swell	 1.00 1.00 1.00 1.00 0.50	Very limited Depth to saturated zone Cutbanks cave Ponding	 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	 1.00 1.00
233B: Birkbeck-----	Very limited Frost action Low strength Shrink-swell	 1.00 1.00 0.92	Somewhat limited Depth to saturated zone Cutbanks cave	 0.99 0.10	Not limited	
234A: Sunbury-----	Very limited Frost action Low strength Shrink-swell Depth to saturated zone	 1.00 1.00 1.00 0.94	Very limited Depth to saturated zone Cutbanks cave	 1.00 0.10	Somewhat limited Depth to saturated zone	 0.94
236A: Sabina-----	Very limited Frost action Low strength Shrink-swell Depth to saturated zone	 1.00 1.00 1.00 0.96	Very limited Depth to saturated zone Cutbanks cave	 1.00 0.10	Somewhat limited Depth to saturated zone	 0.96
244A: Hartsburg-----	Very limited Ponding Depth to saturated zone Frost action Low strength Shrink-swell	 1.00 1.00 1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Cutbanks cave	 1.00 1.00 0.10	Very limited Ponding Depth to saturated zone	 1.00 1.00
257A: Clarksdale-----	Very limited Frost action Low strength Shrink-swell Depth to saturated zone	 1.00 1.00 1.00 0.83	Very limited Depth to saturated zone Cutbanks cave	 1.00 0.10	Somewhat limited Depth to saturated zone	 0.83
279B: Rozetta-----	Very limited Frost action Low strength Shrink-swell	 1.00 1.00 0.50	Somewhat limited Depth to saturated zone Cutbanks cave	 0.15 0.10	Not limited	

Soil Survey of Macon County, Illinois

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
291B: Xenia-----	Very limited Frost action Low strength Depth to saturated zone Shrink-swell	 1.00 1.00 0.75 0.50	Very limited Depth to saturated zone Cutbanks cave	 1.00 0.10	Somewhat limited Depth to saturated zone	 0.75
322C2: Russell-----	Very limited Frost action Low strength Shrink-swell Slope	 1.00 1.00 0.50 0.01	Somewhat limited Cutbanks cave Slope	 0.10 0.01	Somewhat limited Slope	 0.01
330A: Peotone-----	Very limited Ponding Depth to saturated zone Frost action Low strength Shrink-swell	 1.00 1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Cutbanks cave	 1.00 1.00 0.10	Very limited Ponding Depth to saturated zone	 1.00 1.00
348B: Wingate-----	Very limited Frost action Low strength Shrink-swell Depth to saturated zone	 1.00 1.00 0.50 0.03	Very limited Depth to saturated zone Dense layer Cutbanks cave	 1.00 0.50 0.10	Somewhat limited Depth to saturated zone	 0.03
481A: Raub-----	Very limited Frost action Low strength Depth to saturated zone Shrink-swell	 1.00 1.00 0.75 0.50	Very limited Depth to saturated zone Cutbanks cave	 1.00 0.10	Somewhat limited Depth to saturated zone	 0.75
533: Urban land-----	Not rated		Not rated		Not rated	
618C2: Senachwine-----	Very limited Low strength Shrink-swell Frost action Slope	 1.00 0.50 0.50 0.01	Somewhat limited Cutbanks cave Slope	 0.10 0.01	Somewhat limited Slope	 0.01
618D2: Senachwine-----	Very limited Low strength Slope Shrink-swell Frost action	 1.00 0.96 0.50 0.50	Somewhat limited Slope Cutbanks cave	 0.96 0.10	Somewhat limited Slope	 0.96

Soil Survey of Macon County, Illinois

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets	Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features
618D3: Senachwine-----	Very limited		Somewhat limited		Somewhat limited
	Low strength	1.00	Slope	0.96	Slope
	Slope	0.96	Cutbanks cave	0.10	
	Shrink-swell	0.50			
	Frost action	0.50			
618F: Senachwine-----	Very limited		Very limited		Very limited
	Slope	1.00	Slope	1.00	Slope
	Low strength	1.00	Cutbanks cave	0.10	
	Shrink-swell	0.50			
	Frost action	0.50			
618G: Senachwine-----	Very limited		Very limited		Very limited
	Slope	1.00	Slope	1.00	Slope
	Low strength	1.00	Cutbanks cave	0.10	
	Shrink-swell	0.50			
	Frost action	0.50			
622B2: Wyanet-----	Very limited		Somewhat limited		Not limited
	Low strength	1.00	Cutbanks cave	0.10	
	Shrink-swell	0.50			
	Frost action	0.50			
622C2: Wyanet-----	Very limited		Somewhat limited		Not limited
	Low strength	1.00	Cutbanks cave	0.10	
	Shrink-swell	0.50			
	Frost action	0.50			
675B: Greenbush-----	Very limited		Somewhat limited		Not limited
	Frost action	1.00	Depth to	0.15	
	Low strength	1.00	saturated zone		
	Shrink-swell	0.50	Cutbanks cave	0.10	
679B: Blackberry-----	Very limited		Somewhat limited		Not limited
	Frost action	1.00	Depth to	0.99	
	Low strength	1.00	saturated zone		
	Shrink-swell	0.50	Cutbanks cave	0.10	
684B: Broadwell-----	Very limited		Very limited		Not limited
	Frost action	1.00	Cutbanks cave	1.00	
	Low strength	1.00			
	Shrink-swell	0.50			
687C2: Penfield-----	Very limited		Very limited		Not limited
	Low strength	1.00	Cutbanks cave	1.00	
	Shrink-swell	0.50			
	Frost action	0.50			

Soil Survey of Macon County, Illinois

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
705B: Buckhart-----	Very limited Frost action Low strength Shrink-swell	 1.00 1.00 0.50	Somewhat limited Depth to saturated zone Cutbanks cave	 0.99 0.10	Not limited	
712A: Spaulding-----	Very limited Ponding Depth to saturated zone Frost action Low strength Shrink-swell	 1.00 1.00 1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Cutbanks cave	 1.00 1.00 0.10	Very limited Ponding Depth to saturated zone	 1.00 1.00
722A: Drummer-----	Very limited Ponding Depth to saturated zone Frost action Low strength Shrink-swell	 1.00 1.00 1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Cutbanks cave	 1.00 1.00 0.10	Very limited Ponding Depth to saturated zone	 1.00 1.00
Milford-----	Very limited Ponding Depth to saturated zone Frost action Low strength Shrink-swell	 1.00 1.00 1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Cutbanks cave Too clayey	 1.00 1.00 0.10 0.02	Very limited Ponding Depth to saturated zone	 1.00 1.00
737B: Tama, very deep to sand-----	Very limited Frost action Low strength Shrink-swell	 1.00 1.00 0.50	Very limited Cutbanks cave	 1.00	Not limited	
749B: Buckhart, till substratum-----	Very limited Frost action Low strength Shrink-swell	 1.00 1.00 0.50	Somewhat limited Depth to saturated zone Cutbanks cave	 0.99 0.10	Not limited	
802B: Orthents, loamy----	Very limited Low strength Shrink-swell Frost action	 1.00 0.50 0.50	Somewhat limited Depth to saturated zone Cutbanks cave	 0.47 0.10	Not limited	
802D: Orthents, loamy----	Very limited Low strength Shrink-swell Frost action Slope	 1.00 0.50 0.50 0.37	Somewhat limited Depth to saturated zone Slope Cutbanks cave	 0.47 0.37 0.10	Somewhat limited Slope	 0.37

Soil Survey of Macon County, Illinois

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
865: Pits, gravel-----	Not rated		Not rated		Not rated	
1083A: Wabash, undrained---	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to	1.00	Depth to	1.00	Flooding	1.00
	saturated zone		saturated zone		Depth to	1.00
	Frost action	1.00	Flooding	0.80	saturated zone	
	Flooding	1.00	Too clayey	0.28	Too clayey	1.00
	Low strength	1.00	Cutbanks cave	0.10		
1107A: Sawmill, undrained--	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to	1.00	Depth to	1.00	Flooding	1.00
	saturated zone		saturated zone		Depth to	1.00
	Frost action	1.00	Flooding	0.80	saturated zone	
	Flooding	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
3073A: Ross-----	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.80	Flooding	1.00
	Frost action	0.50	Depth to	0.35		
	Low strength	0.22	saturated zone			
			Cutbanks cave	0.10		
3077A: Huntsville-----	Very limited		Somewhat limited		Very limited	
	Frost action	1.00	Flooding	0.80	Flooding	1.00
	Flooding	1.00	Depth to	0.19		
	Low strength	1.00	saturated zone			
			Cutbanks cave	0.10		
3083A: Wabash-----	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to	1.00	Depth to	1.00	Flooding	1.00
	saturated zone		saturated zone		Depth to	1.00
	Frost action	1.00	Flooding	0.80	saturated zone	
	Flooding	1.00	Too clayey	0.28	Too clayey	1.00
	Low strength	1.00	Cutbanks cave	0.10		
3107A: Sawmill-----	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to	1.00	Depth to	1.00	Flooding	1.00
	saturated zone		saturated zone		Depth to	1.00
	Frost action	1.00	Flooding	0.80	saturated zone	
	Flooding	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
3284A: Tice-----	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to	1.00	Flooding	1.00
	Flooding	1.00	saturated zone		Depth to	0.48
	Low strength	1.00	Flooding	0.80	saturated zone	
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Depth to	0.48				
	saturated zone					

Soil Survey of Macon County, Illinois

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3333A: Wakeland-----	Very limited		Very limited		Very limited	
	Depth to	1.00	Depth to	1.00	Flooding	1.00
	saturated zone		saturated zone		Depth to	1.00
	Frost action	1.00	Flooding	0.80	saturated zone	
	Flooding	1.00	Cutbanks cave	0.10		
3352A: Palms-----	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to	1.00	Flooding	1.00
	Depth to	1.00	saturated zone		Depth to	1.00
	saturated zone		Organic matter	1.00	saturated zone	
	Subsidence	1.00	content			
	Frost action	1.00	Flooding	0.80		
3451A: Lawson-----	Very limited		Somewhat limited		Very limited	
	Frost action	1.00	Depth to	0.99	Flooding	1.00
	Flooding	1.00	saturated zone			
	Low strength	1.00	Flooding	0.80		
			Cutbanks cave	0.10		
7134B: Camden, rarely flooded-----	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
	Flooding	0.40				
7136A: Brooklyn, rarely flooded-----	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to	1.00	Depth to	1.00	Depth to	1.00
	saturated zone		saturated zone		saturated zone	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00	Too clayey	0.01		
	Shrink-swell	1.00				
7198A: Elburn-----	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to	1.00	Depth to	0.75
	Low strength	1.00	saturated zone		saturated zone	
	Depth to	0.75	Cutbanks cave	1.00		
	saturated zone					
	Shrink-swell	0.50				
	Flooding	0.40				
7199B: Plano-----	Very limited		Very limited		Not limited	
	Frost action	1.00	Cutbanks cave	1.00		
	Low strength	1.00				
	Shrink-swell	0.50				
	Flooding	0.40				

Soil Survey of Macon County, Illinois

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7802B: Orthents, loamy, rarely flooded----	Somewhat limited		Somewhat limited		Not limited	
	Low strength	0.78	Depth to	0.47		
	Shrink-swell	0.50	saturated zone			
	Frost action	0.50	Cutbanks cave	0.10		
	Flooding	0.40				
7865: Pits, gravel-----	Not rated		Not rated		Not rated	
8070A: Beaucoup-----	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to	1.00	Depth to	1.00	Depth to	1.00
	saturated zone		saturated zone		saturated zone	
	Frost action	1.00	Flooding	0.60	Flooding	0.60
	Flooding	1.00	Cutbanks cave	0.10		
	Low strength	1.00				

Soil Survey of Macon County, Illinois

Table 15a.--Sanitary Facilities

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
43A: Ipava-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
	Slow water movement	1.00	Seepage	0.53
45A: Denny-----	Very limited Slow water movement	1.00	Very limited Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
56B: Dana-----	Very limited Depth to saturated zone	1.00	Somewhat limited Seepage	0.53
	Slow water movement	1.00	Slope	0.32
			Depth to saturated zone	0.04
56B2: Dana-----	Very limited Depth to saturated zone	1.00	Somewhat limited Seepage	0.53
	Slow water movement	1.00	Depth to saturated zone	0.44
			Slope	0.32
56C2: Dana-----	Very limited Depth to saturated zone	1.00	Very limited Slope	1.00
	Slow water movement	1.00	Depth to saturated zone	0.75
			Seepage	0.53
67A: Harpster-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
	Slow water movement	0.46	Seepage	0.53
68A: Sable-----	Very limited Ponding	1.00	Very limited Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46	Seepage	0.53

Soil Survey of Macon County, Illinois

Table 15a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
86B: Osco-----	Somewhat limited Slow water movement Depth to saturated zone	0.46 0.40	Somewhat limited Seepage Slope	0.53 0.18
88C: Sparta-----	Very limited Filtering capacity Seepage, bottom layer	1.00 1.00	Very limited Seepage Slope	1.00 1.00
119C2: Elco-----	Very limited Depth to saturated zone Slow water movement	1.00 1.00	Very limited Slope Seepage Depth to saturated zone	1.00 0.53 0.04
132A: Starks-----	Very limited Depth to saturated zone Slow water movement	1.00 0.46	Very limited Depth to saturated zone Seepage	1.00 0.53
134B: Camden-----	Very limited Seepage, bottom layer Slow water movement	1.00 0.46	Very limited Seepage Slope	1.00 0.18
136A: Brooklyn-----	Very limited Slow water movement Ponding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
138A: Shiloh-----	Very limited Slow water movement Ponding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
148B: Proctor-----	Very limited Seepage, bottom layer Slow water movement	1.00 0.46	Very limited Seepage Slope	1.00 0.32

Soil Survey of Macon County, Illinois

Table 15a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
148C2: Proctor-----	Somewhat limited Slow water movement	0.46	Very limited Slope Seepage	1.00 0.53
152A: Drummer-----	Very limited Ponding Depth to saturated zone Slow water movement	1.00 1.00 0.46	Very limited Ponding Depth to saturated zone Seepage	1.00 1.00 0.53
153A: Pella-----	Very limited Ponding Depth to saturated zone Seepage, bottom layer Slow water movement	1.00 1.00 1.00 0.46	Very limited Ponding Depth to saturated zone Seepage	1.00 1.00 1.00
154A: Flanagan-----	Very limited Depth to saturated zone Slow water movement	1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 0.53
171B: Catlin-----	Very limited Depth to saturated zone Slow water movement	1.00 1.00	Somewhat limited Seepage Depth to saturated zone Slope	0.53 0.08 0.08
198A: Elburn-----	Very limited Depth to saturated zone Seepage, bottom layer Slow water movement	1.00 1.00 0.46	Very limited Seepage Depth to saturated zone	1.00 1.00
199A: Plano-----	Very limited Seepage, bottom layer Slow water movement	1.00 0.46	Very limited Seepage	1.00
199B: Plano-----	Very limited Seepage, bottom layer Slow water movement	1.00 0.46	Very limited Seepage Slope	1.00 0.18

Soil Survey of Macon County, Illinois

Table 15a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
199C2: Plano-----	Very limited Seepage, bottom layer Slow water movement	1.00 0.46	Very limited Seepage Slope	1.00 1.00
206A: Thorp-----	Very limited Slow water movement Depth to saturated zone Seepage, bottom layer Ponding	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Seepage Ponding	1.00 1.00 1.00
233B: Birkbeck-----	Very limited Depth to saturated zone Slow water movement	1.00 1.00	Somewhat limited Seepage Depth to saturated zone Slope	0.53 0.19 0.18
234A: Sunbury-----	Very limited Depth to saturated zone Slow water movement	1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 0.53
236A: Sabina-----	Very limited Depth to saturated zone Slow water movement	1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 0.53
244A: Hartsburg-----	Very limited Ponding Depth to saturated zone Slow water movement	1.00 1.00 0.46	Very limited Ponding Depth to saturated zone Seepage	1.00 1.00 0.53
257A: Clarksdale-----	Very limited Depth to saturated zone Slow water movement	1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 0.53
279B: Rozetta-----	Somewhat limited Slow water movement Depth to saturated zone	0.46 0.40	Somewhat limited Seepage Slope	0.53 0.18

Soil Survey of Macon County, Illinois

Table 15a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
291B: Xenia-----	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00	Seepage	0.53
			Slope	0.32
322C2: Russell-----	Very limited		Very limited	
	Slow water movement	1.00	Slope	1.00
	Slope	0.01	Seepage	0.53
330A: Peotone-----	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00		
348B: Wingate-----	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
	Slow water movement	1.00	Depth to saturated zone	0.44
			Slope	0.32
481A: Raub-----	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00	Seepage	0.53
533: Urban land-----	Not rated		Not rated	
618C2: Senachwine-----	Very limited		Very limited	
	Slow water movement	1.00	Slope	1.00
	Slope	0.01	Seepage	0.53
618D2: Senachwine-----	Very limited		Very limited	
	Slow water movement	1.00	Slope	1.00
	Slope	0.96	Seepage	0.53
618D3: Senachwine-----	Very limited		Very limited	
	Slow water movement	1.00	Slope	1.00
	Slope	0.96	Seepage	0.53
618F: Senachwine-----	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Slow water movement	1.00	Seepage	0.53

Soil Survey of Macon County, Illinois

Table 15a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoons		
	Rating class and limiting features	Value	Rating class and limiting features	Value
618G: Senachwine-----	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope Seepage	1.00 0.53
622B2: Wyanet-----	Very limited Slow water movement	1.00	Somewhat limited Seepage Slope	0.53 0.18
622C2: Wyanet-----	Very limited Slow water movement	1.00	Very limited Slope Seepage	1.00 0.53
675B: Greenbush-----	Somewhat limited Slow water movement Depth to saturated zone	0.46 0.40	Somewhat limited Seepage Slope	0.53 0.18
679B: Blackberry-----	Very limited Depth to saturated zone Slow water movement	1.00 0.46	Very limited Depth to saturated zone Seepage Slope	1.00 0.53 0.18
684B: Broadwell-----	Very limited Seepage, bottom layer Slow water movement	1.00 0.46	Very limited Seepage Slope	1.00 0.18
687C2: Penfield-----	Very limited Seepage, bottom layer Slow water movement	1.00 0.46	Very limited Seepage Slope	1.00 1.00
705B: Buckhart-----	Very limited Depth to saturated zone Slow water movement	1.00 0.46	Very limited Depth to saturated zone Seepage Slope	1.00 0.53 0.18
712A: Spaulding-----	Very limited Ponding Depth to saturated zone Slow water movement	1.00 1.00 0.46	Very limited Ponding Depth to saturated zone Seepage	1.00 1.00 0.53

Soil Survey of Macon County, Illinois

Table 15a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
722A:				
Drummer-----	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to	1.00	Depth to	1.00
	saturated zone		saturated zone	
	Slow water	0.46	Seepage	0.53
	movement			
Milford-----	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to	1.00	Depth to	1.00
	saturated zone		saturated zone	
	Slow water	1.00	Seepage	0.53
	movement			
737B:				
Tama, very deep to				
sand-----	Very limited		Somewhat limited	
	Seepage, bottom	1.00	Seepage	0.53
	layer		Slope	0.18
	Slow water	0.46		
	movement			
749B:				
Buckhart, till				
substratum-----	Very limited		Somewhat limited	
	Depth to	1.00	Seepage	0.53
	saturated zone		Slope	0.18
	Slow water	1.00	Depth to	0.04
	movement		saturated zone	
802B:				
Orthents, loamy----	Somewhat limited		Somewhat limited	
	Depth to	0.94	Depth to	0.40
	saturated zone		saturated zone	
	Slow water	0.78	Slope	0.32
	movement		Seepage	0.21
802D:				
Orthents, loamy----	Somewhat limited		Very limited	
	Depth to	0.94	Slope	1.00
	saturated zone		Depth to	0.40
	Slow water	0.78	saturated zone	
	movement		Seepage	0.21
	Slope	0.37		
865:				
Pits, gravel-----	Not rated		Not rated	
1083A:				
Wabash, undrained---	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Slow water	1.00	Flooding	1.00
	movement		Depth to	1.00
	Ponding	1.00	saturated zone	
	Depth to	1.00		
	saturated zone			

Soil Survey of Macon County, Illinois

Table 15a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
1107A: Sawmill, undrained--	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46	Seepage	0.53
3073A: Ross-----	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Seepage, bottom layer	1.00	Seepage	1.00
	Depth to saturated zone	0.84	Depth to saturated zone	0.17
	Slow water movement	0.46		
3077A: Huntsville-----	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	0.53	Seepage	0.53
	Slow water movement	0.46	Depth to saturated zone	0.01
3083A: Wabash-----	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Slow water movement	1.00	Flooding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
3107A: Sawmill-----	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46	Seepage	0.53
3284A: Tice-----	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46	Seepage	0.53
3333A: Wakeland-----	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46	Seepage	0.53

Soil Survey of Macon County, Illinois

Table 15a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
3352A: Palms-----	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage, bottom layer	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Organic matter content	1.00
3451A: Lawson-----	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46	Seepage	0.53
7134B: Camden, rarely flooded-----	Very limited		Very limited	
	Seepage, bottom layer	1.00	Seepage	1.00
	Slow water movement	0.46	Flooding	0.40
	Flooding	0.40	Slope	0.02
7136A: Brooklyn, rarely flooded-----	Very limited		Very limited	
	Slow water movement	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Flooding	0.40
	Flooding	0.40		
7198A: Elburn-----	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage, bottom layer	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46	Flooding	0.40
	Flooding	0.40		
7199B: Plano-----	Very limited		Very limited	
	Seepage, bottom layer	1.00	Seepage	1.00
	Slow water movement	0.46	Flooding	0.40
	Flooding	0.40	Slope	0.18

Soil Survey of Macon County, Illinois

Table 15a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
7802B: Orthents, loamy, rarely flooded----	Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.94	Flooding	0.40
	Slow water movement	0.78	Depth to saturated zone	0.40
	Flooding	0.40	Slope	0.32
			Seepage	0.21
7865: Pits, gravel-----	Not rated		Not rated	
8070A: Beaucoup-----	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00		

Soil Survey of Macon County, Illinois

Table 15b.--Sanitary Facilities

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
43A: Ipava-----	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Too clayey	1.00 0.50
45A: Denny-----	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Hard to compact Too clayey	1.00 1.00 1.00 0.50
56B: Dana-----	Somewhat limited Depth to saturated zone Too clayey	0.68 0.50	Somewhat limited Depth to saturated zone	0.04	Somewhat limited Too clayey Depth to saturated zone	0.50 0.24
56B2: Dana-----	Somewhat limited Depth to saturated zone Too clayey	0.95 0.50	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone Too clayey	0.68 0.50
56C2: Dana-----	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.75	Somewhat limited Depth to saturated zone Too clayey	0.86 0.50
67A: Harpster-----	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 1.00 0.50
68A: Sable-----	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey	1.00 1.00 0.50
86B: Osco-----	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Somewhat limited Too clayey	0.50

Soil Survey of Macon County, Illinois

Table 15b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
88C: Sparta-----	Very limited Seepage, bottom layer Too sandy	1.00 0.50	Very limited Seepage	1.00	Very limited Seepage Too sandy	1.00 0.50
119C2: Elco-----	Somewhat limited Depth to saturated zone Too clayey	0.68 0.50	Somewhat limited Depth to saturated zone	0.04	Somewhat limited Too clayey Depth to saturated zone	0.50 0.24
132A: Starks-----	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone Too clayey	0.96 0.50
134B: Camden-----	Very limited Seepage, bottom layer	1.00	Not limited		Somewhat limited Seepage	0.22
136A: Brooklyn-----	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00 1.00
138A: Shiloh-----	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00 1.00
148B: Proctor-----	Very limited Seepage, bottom layer	1.00	Not limited		Not limited	
148C2: Proctor-----	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
152A: Drummer-----	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey	1.00 1.00 0.50

Soil Survey of Macon County, Illinois

Table 15b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
153A: Pella-----	Very limited		Very limited		Very limited	
	Depth to	1.00	Ponding	1.00	Ponding	1.00
	saturated zone		Depth to	1.00	Depth to	1.00
	Ponding	1.00	saturated zone		saturated zone	
	Seepage, bottom	1.00	Seepage	1.00	Too sandy	0.50
	layer				Seepage	0.22
	Too sandy	0.50				
154A: Flanagan-----	Very limited		Very limited		Very limited	
	Depth to	1.00	Depth to	1.00	Depth to	1.00
	saturated zone		saturated zone		saturated zone	
					Too clayey	0.50
171B: Catlin-----	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to	0.76	Depth to	0.08	Too clayey	0.50
	saturated zone		saturated zone		Depth to	0.32
					saturated zone	
198A: Elburn-----	Very limited		Very limited		Very limited	
	Depth to	1.00	Depth to	1.00	Depth to	1.00
	saturated zone		saturated zone		saturated zone	
	Seepage, bottom	1.00			Too clayey	0.50
	layer					
	Too clayey	0.50				
199A: Plano-----	Very limited		Not limited		Somewhat limited	
	Seepage, bottom	1.00			Too clayey	0.50
	layer					
	Too clayey	0.50				
199B: Plano-----	Very limited		Not limited		Somewhat limited	
	Seepage, bottom	1.00			Too clayey	0.50
	layer					
	Too clayey	0.50				
199C2: Plano-----	Very limited		Not limited		Somewhat limited	
	Seepage, bottom	1.00			Too clayey	0.50
	layer					
	Too clayey	0.50				
206A: Thorp-----	Very limited		Very limited		Very limited	
	Depth to	1.00	Depth to	1.00	Depth to	1.00
	saturated zone		saturated zone		saturated zone	
	Seepage, bottom	1.00	Ponding	1.00	Ponding	1.00
	layer				Too clayey	0.50
	Ponding	1.00				
	Too clayey	0.50				
233B: Birkbeck-----	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to	0.86	Depth to	0.19	Too clayey	0.50
	saturated zone		saturated zone		Depth to	0.47
	Too clayey	0.50			saturated zone	

Soil Survey of Macon County, Illinois

Table 15b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
234A: Sunbury-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Too clayey	1.00 0.50
236A: Sabina-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Too clayey	1.00 0.50
244A: Hartsburg-----	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
257A: Clarksdale-----	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Hard to compact Too clayey	1.00 1.00 0.50
279B: Rozetta-----	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Somewhat limited Too clayey	0.50
291B: Xenia-----	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Too clayey	1.00 0.50
322C2: Russell-----	Somewhat limited Too clayey Slope	0.50 0.01	Somewhat limited Slope	0.01	Somewhat limited Too clayey Slope	0.50 0.01
330A: Peotone-----	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Hard to compact Too clayey	1.00 1.00 1.00 0.50
348B: Wingate-----	Somewhat limited Depth to saturated zone Too clayey	0.95 0.50	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone Too clayey	0.68 0.50
481A: Raub-----	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Too clayey	1.00 0.50

Soil Survey of Macon County, Illinois

Table 15b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
533: Urban land-----	Not rated		Not rated		Not rated	
618C2: Senachwine-----	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01
618D2: Senachwine-----	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96
618D3: Senachwine-----	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96
618F: Senachwine-----	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
618G: Senachwine-----	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
622B2: Wyanet-----	Not limited		Not limited		Not limited	
622C2: Wyanet-----	Not limited		Not limited		Not limited	
675B: Greenbush-----	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Somewhat limited Too clayey	0.50
679B: Blackberry-----	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Somewhat limited Too clayey Depth to saturated zone	0.50 0.24
684B: Broadwell-----	Very limited Seepage, bottom layer Too clayey	1.00 0.50	Not limited		Somewhat limited Too clayey	0.50
687C2: Penfield-----	Very limited Seepage, bottom layer Too clayey	1.00 0.50	Very limited Seepage	1.00	Somewhat limited Too clayey	0.50
705B: Buckhart-----	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Somewhat limited Too clayey Depth to saturated zone	0.50 0.24

Soil Survey of Macon County, Illinois

Table 15b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
712A: Spaulding-----	Very limited		Very limited		Very limited	
	Depth to	1.00	Ponding	1.00	Ponding	1.00
	saturated zone		Depth to	1.00	Depth to	1.00
	Ponding	1.00	saturated zone		saturated zone	
					Too clayey	0.50
722A: Drummer-----	Very limited		Very limited		Very limited	
	Depth to	1.00	Ponding	1.00	Ponding	1.00
	saturated zone		Depth to	1.00	Depth to	1.00
	Ponding	1.00	saturated zone		saturated zone	
	Too clayey	0.50			Too clayey	0.50
Milford-----	Very limited		Very limited		Very limited	
	Depth to	1.00	Ponding	1.00	Ponding	1.00
	saturated zone		Depth to	1.00	Depth to	1.00
	Ponding	1.00	saturated zone		saturated zone	
					Too clayey	0.50
737B: Tama, very deep to sand-----	Very limited		Not limited		Somewhat limited	
	Seepage, bottom	1.00			Too clayey	0.50
	layer					
	Too clayey	0.50				
749B: Buckhart, till substratum-----	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to	0.68	Depth to	0.04	Too clayey	0.50
	saturated zone		saturated zone		Depth to	0.24
	Too clayey	0.50			saturated zone	
802B: Orthents, loamy-----	Very limited		Very limited		Not limited	
	Depth to	1.00	Depth to	1.00		
	saturated zone		saturated zone			
802D: Orthents, loamy-----	Very limited		Very limited		Somewhat limited	
	Depth to	1.00	Depth to	1.00	Too clayey	0.50
	saturated zone		saturated zone		Slope	0.37
	Too clayey	0.50	Slope	0.37		
	Slope	0.37				
865: Pits, gravel-----	Not rated		Not rated		Not rated	
1083A: Wabash, undrained----	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to	1.00	Ponding	1.00	Depth to	1.00
	saturated zone		Depth to	1.00	saturated zone	
	Ponding	1.00	saturated zone		Too clayey	1.00
	Too clayey	1.00			Hard to compact	1.00

Soil Survey of Macon County, Illinois

Table 15b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1107A: Sawmill, undrained---	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Too clayey	0.50				
3073A: Ross-----	Very limited		Very limited		Not limited	
	Flooding	1.00	Flooding	1.00		
	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
	Seepage, bottom layer	1.00				
3077A: Huntsville-----	Very limited		Very limited		Not limited	
	Flooding	1.00	Flooding	1.00		
	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
3083A: Wabash-----	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Too clayey	1.00			Hard to compact	1.00
3107A: Sawmill-----	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Too clayey	0.50				
3284A: Tice-----	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.96
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Too clayey	0.50				
3333A: Wakeland-----	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
3352A: Palms-----	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Seepage	1.00
	Seepage, bottom layer	1.00	Seepage	1.00	Organic matter content	1.00
	Organic matter content	1.00				

Soil Survey of Macon County, Illinois

Table 15b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3451A: Lawson-----	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.47
7134B: Camden, rarely flooded-----	Very limited Seepage, bottom layer Flooding	1.00 0.40	Somewhat limited Flooding	0.40	Somewhat limited Seepage	0.22
7136A: Brooklyn, rarely flooded-----	Very limited Depth to saturated zone Ponding Too clayey Flooding	1.00 1.00 1.00 0.40	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 0.40	Very limited Ponding Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00 1.00
7198A: Elburn-----	Very limited Depth to saturated zone Seepage, bottom layer Too clayey Flooding	1.00 1.00 0.50 0.40	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Too clayey	1.00 0.50
7199B: Plano-----	Very limited Seepage, bottom layer Too clayey Flooding	1.00 0.50 0.40	Somewhat limited Flooding	0.40	Somewhat limited Too clayey	0.50
7802B: Orthents, loamy, rarely flooded----	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 0.40	Not limited	
7865: Pits, gravel-----	Not rated		Not rated		Not rated	
8070A: Beaucoup-----	Very limited Flooding Depth to saturated zone Ponding Too clayey	1.00 1.00 1.00 0.50	Very limited Flooding Ponding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey	1.00 1.00 0.50

Soil Survey of Macon County, Illinois

Table 16a.--Construction Materials

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
43A: Ipava-----	Fair		Poor		Fair	
	Too clayey	0.18	Low strength	0.00	Too clayey	0.14
	Low content of organic matter	0.18	Wetness	0.14	Wetness	0.14
	Too acid	0.84	Shrink-swell	0.83		
	Water erosion	0.99				
45A: Denny-----	Fair		Poor		Poor	
	Too clayey	0.02	Wetness	0.00	Wetness	0.00
	Low content of organic matter	0.50	Low strength	0.00	Too clayey	0.01
	Water erosion	0.90	Shrink-swell	0.69		
	Too acid	0.95				
56B: Dana-----	Fair		Poor		Fair	
	Low content of organic matter	0.50	Low strength	0.00	Too clayey	0.76
	Carbonate content	0.68	Shrink-swell	0.90	Wetness	0.98
	Too acid	0.97	Wetness	0.98		
	Too clayey	0.98				
	Water erosion	0.99				
56B2: Dana-----	Fair		Fair		Fair	
	Carbonate content	0.68	Wetness	0.76	Wetness	0.76
	Too acid	0.95	Shrink-swell	0.93	Too clayey	0.76
	Too clayey	0.98				
	Water erosion	0.99				
56C2: Dana-----	Fair		Fair		Fair	
	Carbonate content	0.68	Wetness	0.53	Wetness	0.53
	Too clayey	0.98	Shrink-swell	0.97	Too clayey	0.76
	Water erosion	0.99				
67A: Harpster-----	Fair		Poor		Poor	
	Carbonate content	0.80	Wetness	0.00	Wetness	0.00
	Too clayey	0.92	Low strength	0.00	Too clayey	0.87
	Water erosion	0.99	Shrink-swell	0.99	Carbonate content	0.96
68A: Sable-----	Fair		Poor		Poor	
	Water erosion	0.68	Wetness	0.00	Wetness	0.00
	Too clayey	0.92	Low strength	0.00	Too clayey	0.92
	Too acid	0.92	Shrink-swell	0.99		

Soil Survey of Macon County, Illinois

Table 16a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
86B: Osco-----	Fair		Poor		Fair	
	Low content of organic matter	0.50	Low strength	0.00	Too clayey	0.64
	Too acid	0.61	Shrink-swell	0.94	Too acid	0.99
	Too clayey	0.98				
	Water erosion	0.99				
88C: Sparta-----	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00				
	Low content of organic matter	0.05				
	Droughty	0.23				
	Too acid	0.74				
119C2: Elco-----	Fair		Poor		Fair	
	Low content of organic matter	0.02	Low strength	0.00	Too clayey	0.57
	Water erosion	0.90	Shrink-swell	0.43	Wetness	0.98
	Too clayey	0.98	Wetness	0.98		
132A: Starks-----	Fair		Poor		Fair	
	Low content of organic matter	0.32	Low strength	0.00	Wetness	0.29
	Water erosion	0.68	Wetness	0.29	Too clayey	0.61
	Too acid	0.68	Shrink-swell	0.99		
	Too clayey	0.98				
134B: Camden-----	Fair		Good		Fair	
	Low content of organic matter	0.12			Too clayey	0.55
	Water erosion	0.37				
	Too acid	0.84				
	Too clayey	0.92				
136A: Brooklyn-----	Poor		Poor		Poor	
	Too clayey	0.00	Wetness	0.00	Wetness	0.00
	Water erosion	0.06	Low strength	0.00	Too clayey	0.00
	Low content of organic matter	0.50	Shrink-swell	0.64		
	Carbonate content	0.68				
	Too acid	0.92				
138A: Shiloh-----	Poor		Poor		Poor	
	Too clayey	0.00	Wetness	0.00	Wetness	0.00
			Low strength	0.00	Too clayey	0.00
			Shrink-swell	0.22		
148B: Proctor-----	Fair		Poor		Good	
	Low content of organic matter	0.50	Low strength	0.00		
	Water erosion	0.99				

Soil Survey of Macon County, Illinois

Table 16a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
148C2: Proctor-----	Fair		Poor		Fair	
	Too clayey	0.92	Low strength	0.00	Too clayey	0.72
	Too acid	0.92	Shrink-swell	0.98		
	Water erosion	0.99				
152A: Drummer-----	Fair		Poor		Poor	
	Too acid	0.95	Wetness	0.00	Wetness	0.00
	Too clayey	0.98	Low strength	0.00	Too clayey	0.86
	Water erosion	0.99	Shrink-swell	0.99		
153A: Pella-----	Fair		Poor		Poor	
	Low content of organic matter	0.12	Wetness	0.00	Wetness	0.00
	Water erosion	0.68				
	Carbonate content	0.80				
154A: Flanagan-----	Fair		Fair		Fair	
	Low content of organic matter	0.08	Wetness	0.14	Too clayey	0.13
	Too clayey	0.18	Shrink-swell	0.90	Wetness	0.14
	Carbonate content	0.68				
	Too acid	0.84				
	Water erosion	0.99				
171B: Catlin-----	Fair		Fair		Fair	
	Low content of organic matter	0.08	Wetness	0.95	Too clayey	0.64
	Carbonate content	0.68	Shrink-swell	0.98	Wetness	0.95
	Too clayey	0.82				
	Water erosion	0.99				
198A: Elburn-----	Fair		Poor		Fair	
	Too clayey	0.98	Low strength	0.00	Wetness	0.14
	Water erosion	0.99	Wetness	0.14	Too clayey	0.81
			Shrink-swell	0.99		
199A: Plano-----	Fair		Poor		Fair	
	Low content of organic matter	0.68	Low strength	0.00	Too clayey	0.67
	Too acid	0.97	Shrink-swell	0.98		
	Too clayey	0.98				
	Water erosion	0.99				
199B: Plano-----	Fair		Poor		Fair	
	Low content of organic matter	0.68	Low strength	0.00	Too clayey	0.67
	Too acid	0.92	Shrink-swell	0.99		
	Too clayey	0.98				
	Water erosion	0.99				

Soil Survey of Macon County, Illinois

Table 16a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
199C2: Plano-----	Fair		Poor		Fair	
	Low content of organic matter	0.68	Low strength	0.00	Too clayey	0.67
	Too acid	0.97	Shrink-swell	0.99		
	Too clayey	0.98				
	Water erosion	0.99				
206A: Thorp-----	Fair		Poor		Poor	
	Low content of organic matter	0.68	Wetness	0.00	Wetness	0.00
	Water erosion	0.90	Low strength	0.00		
	Too acid	0.97	Shrink-swell	0.99		
233B: Birkbeck-----	Fair		Poor		Fair	
	Too acid	0.16	Low strength	0.00	Too clayey	0.49
	Low content of organic matter	0.18	Shrink-swell	0.78	Wetness	0.89
	Water erosion	0.68	Wetness	0.89	Too acid	0.98
	Too clayey	0.82				
	Carbonate content	0.95				
234A: Sunbury-----	Fair		Fair		Fair	
	Low content of organic matter	0.08	Wetness	0.04	Wetness	0.04
	Too clayey	0.18	Shrink-swell	0.88	Too clayey	0.11
	Water erosion	0.68				
	Carbonate content	0.68				
	Too acid	0.84				
236A: Sabina-----	Fair		Fair		Fair	
	Low content of organic matter	0.08	Wetness	0.02	Wetness	0.02
	Too clayey	0.18	Shrink-swell	0.96	Too clayey	0.11
	Water erosion	0.37				
	Too acid	0.54				
	Carbonate content	0.68				
244A: Hartsburg-----	Fair		Poor		Poor	
	Low content of organic matter	0.18	Wetness	0.00	Wetness	0.00
	Water erosion	0.68	Low strength	0.00	Too clayey	0.82
	Carbonate content	0.68				
	Too clayey	0.82				
257A: Clarksdale-----	Fair		Poor		Fair	
	Low content of organic matter	0.08	Low strength	0.00	Wetness	0.09
	Too clayey	0.18	Wetness	0.09	Too clayey	0.10
	Water erosion	0.68	Shrink-swell	0.54		
	Too acid	0.80				

Soil Survey of Macon County, Illinois

Table 16a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
279B: Rozetta-----	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.57
	Water erosion	0.68	Shrink-swell	0.92		
	Too acid	0.68				
	Too clayey	0.98				
291B: Xenia-----	Fair		Fair		Fair	
	Low content of organic matter	0.32	Wetness	0.14	Wetness	0.14
	Water erosion	0.68	Shrink-swell	0.94	Too clayey	0.61
	Carbonate content	0.68				
	Too acid	0.74				
	Too clayey	0.98				
322C2: Russell-----	Fair		Poor		Fair	
	Too acid	0.20	Low strength	0.00	Too clayey	0.57
	Low content of organic matter	0.32	Shrink-swell	0.90	Too acid	0.76
	Carbonate content	0.68				
	Water erosion	0.90				
	Too clayey	0.92				
330A: Peotone-----	Fair		Poor		Poor	
	Too clayey	0.18	Wetness	0.00	Wetness	0.00
			Low strength	0.00	Too clayey	0.18
			Shrink-swell	0.21		
348B: Wingate-----	Fair		Poor		Fair	
	Low content of organic matter	0.08	Low strength	0.00	Too clayey	0.67
	Water erosion	0.68	Wetness	0.76	Wetness	0.76
	Carbonate content	0.68	Shrink-swell	0.95		
	Too acid	0.74				
	Too clayey	0.98				
481A: Raub-----	Fair		Poor		Fair	
	Carbonate content	0.68	Low strength	0.00	Wetness	0.14
	Too acid	0.95	Wetness	0.14		
	Water erosion	0.99	Shrink-swell	0.99		
533: Urban land-----	Not rated		Not rated		Not rated	
618C2: Senachwine-----	Fair		Good		Good	
	Low content of organic matter	0.08				
	Carbonate content	0.68				
	Too acid	0.84				
	Water erosion	0.99				

Soil Survey of Macon County, Illinois

Table 16a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material	Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features
618D2: Senachwine-----	Fair		Good		Fair
	Low content of organic matter	0.08			Slope
	Carbonate content	0.68			
	Too acid	0.84			
	Water erosion	0.90			
618D3: Senachwine-----	Fair		Good		Fair
	Low content of organic matter	0.01			Slope
	Carbonate content	0.68			
	Water erosion	0.99			
618F: Senachwine-----	Fair		Poor		Poor
	Low content of organic matter	0.08	Slope	0.00	Slope
	Carbonate content	0.68			Too clayey
	Too acid	0.74			
	Too clayey	0.98			
	Water erosion	0.99			
618G: Senachwine-----	Fair		Poor		Poor
	Low content of organic matter	0.08	Slope	0.00	Slope
	Too acid	0.54			Too clayey
	Water erosion	0.68			Too acid
	Carbonate content	0.68			
	Too clayey	0.98			
622B2: Wyanet-----	Fair		Good		Fair
	Low content of organic matter	0.08			Too clayey
	Carbonate content	0.68			
	Too clayey	0.98			
	Too acid	0.99			
	Water erosion	0.99			
622C2: Wyanet-----	Fair		Good		Fair
	Low content of organic matter	0.08			Too clayey
	Carbonate content	0.68			
	Too clayey	0.98			
	Too acid	0.99			
	Water erosion	0.99			
675B: Greenbush-----	Fair		Poor		Fair
	Too acid	0.46	Low strength	0.00	Too clayey
	Low content of organic matter	0.88	Shrink-swell	0.94	Too acid
	Water erosion	0.90			
	Too clayey	0.98			

Soil Survey of Macon County, Illinois

Table 16a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
679B: Blackberry-----	Fair		Poor		Fair	
	Low content of organic matter	0.68	Low strength	0.00	Too clayey	0.63
	Too acid	0.92	Wetness	0.98	Wetness	0.98
	Too clayey	0.92	Shrink-swell	0.98		
	Water erosion	0.99				
684B: Broadwell-----	Fair		Poor		Fair	
	Low content of organic matter	0.50	Low strength	0.00	Too clayey	0.64
	Too clayey	0.98	Shrink-swell	0.98		
	Water erosion	0.99				
687C2: Penfield-----	Fair		Poor		Good	
	Low content of organic matter	0.32	Low strength	0.00		
705B: Buckhart-----	Fair		Poor		Fair	
	Low content of organic matter	0.68	Low strength	0.00	Too clayey	0.67
	Too clayey	0.98	Shrink-swell	0.92	Wetness	0.98
	Water erosion	0.99	Wetness	0.98		
712A: Spaulding-----	Fair		Poor		Poor	
	Low content of organic matter	0.12	Wetness	0.00	Wetness	0.00
	Carbonate content	0.68	Low strength	0.00	Carbonate content	0.90
	Too clayey	0.98	Shrink-swell	0.98	Too clayey	0.98
	Water erosion	0.99				
722A: Drummer-----	Fair		Poor		Poor	
	Too acid	0.92	Wetness	0.00	Wetness	0.00
	Too clayey	0.98	Low strength	0.00	Too clayey	0.81
	Water erosion	0.99	Shrink-swell	0.99		
Milford-----	Fair		Poor		Poor	
	Too clayey	0.18	Wetness	0.00	Wetness	0.00
	Low content of organic matter	0.18	Low strength	0.00	Too clayey	0.18
	Water erosion	0.99	Shrink-swell	0.86		
737B: Tama, very deep to sand-----	Fair		Poor		Fair	
	Low content of organic matter	0.50	Low strength	0.00	Too clayey	0.64
	Too clayey	0.98	Shrink-swell	0.93		
	Water erosion	0.99				

Soil Survey of Macon County, Illinois

Table 16a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
749B: Buckhart, till substratum-----	Fair Low content of organic matter Too clayey Water erosion	 0.68 0.98 0.99	Poor Low strength Shrink-swell Wetness	 0.00 0.90 0.98	Fair Too clayey Wetness	 0.67 0.98
802B: Orthents, loamy----	Fair Low content of organic matter Water erosion	 0.50 0.90	Poor Low strength Shrink-swell	 0.00 0.87	Good	
802D: Orthents, loamy----	Fair Low content of organic matter Water erosion	 0.12 0.90	Poor Low strength Shrink-swell	 0.00 0.87	Fair Slope	 0.63
865: Pits, gravel-----	Not rated		Not rated		Not rated	
1083A: Wabash, undrained--	Poor Too clayey Low content of organic matter	 0.00 0.82	Poor Wetness Low strength Shrink-swell	 0.00 0.00 0.11	Poor Too clayey Wetness	 0.00 0.00
1107A: Sawmill, undrained--	Fair Too clayey	 0.98	Poor Wetness Low strength Shrink-swell	 0.00 0.00 0.87	Poor Wetness Too clayey	 0.00 0.98
3073A: Ross-----	Good		Fair Low strength	 0.78	Good	
3077A: Huntsville-----	Good		Poor Low strength	 0.00	Good	
3083A: Wabash-----	Poor Too clayey Low content of organic matter	 0.00 0.82	Poor Wetness Low strength Shrink-swell	 0.00 0.00 0.11	Poor Too clayey Wetness	 0.00 0.00
3107A: Sawmill-----	Fair Too clayey Too acid	 0.98 0.99	Poor Wetness Low strength Shrink-swell	 0.00 0.00 0.87	Poor Wetness Too clayey	 0.00 0.98
3284A: Tice-----	Fair Low content of organic matter Too clayey Water erosion	 0.88 0.98 0.99	Poor Low strength Wetness Shrink-swell	 0.00 0.29 0.87	Fair Wetness Too clayey	 0.29 0.98

Soil Survey of Macon County, Illinois

Table 16a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3333A: Wakeland-----	Fair		Poor		Poor	
	Water erosion	0.37	Wetness	0.00	Wetness	0.00
	Low content of organic matter	0.88				
	Too acid	0.95				
3352A: Palms-----	Fair		Poor		Poor	
	Too clayey	0.98	Wetness	0.00	Wetness	0.00
			Shrink-swell	0.00	High content of organic matter	0.00
					Too clayey	0.98
3451A: Lawson-----	Fair		Poor		Fair	
	Low content of organic matter	0.88	Low strength	0.00	Wetness	0.89
	Water erosion	0.99	Wetness	0.89		
7134B: Camden, rarely flooded-----	Fair		Good		Fair	
	Low content of organic matter	0.02			Too clayey	0.55
	Water erosion	0.37				
	Too acid	0.84				
	Too clayey	0.92				
7136A: Brooklyn, rarely flooded-----	Poor		Poor		Poor	
	Too clayey	0.00	Wetness	0.00	Wetness	0.00
	Water erosion	0.37	Low strength	0.00	Too clayey	0.00
	Low content of organic matter	0.50	Shrink-swell	0.64		
	Too acid	0.92				
7198A: Elburn-----	Fair		Poor		Fair	
	Too clayey	0.98	Low strength	0.00	Wetness	0.14
	Water erosion	0.99	Wetness	0.14	Too clayey	0.81
			Shrink-swell	0.99		
7199B: Plano-----	Fair		Poor		Fair	
	Water erosion	0.90	Low strength	0.00	Too clayey	0.72
	Too clayey	0.92	Shrink-swell	0.97		
7802B: Orthents, loamy, rarely flooded----	Fair		Fair		Good	
	Low content of organic matter	0.50	Low strength	0.22		
	Water erosion	0.90	Shrink-swell	0.87		
7865: Pits, gravel-----	Not rated		Not rated		Not rated	

Soil Survey of Macon County, Illinois

Table 16a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8070A: Beaucoup-----	Fair Too clayey	0.98	Poor Wetness Low strength Shrink-swell	0.00 0.00 0.96	Poor Wetness Too clayey	0.00 0.76

Soil Survey of Macon County, Illinois

Table 16b.--Construction Materials

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table)

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
43A:				
Ipava-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
45A:				
Denny-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
56B:				
Dana-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
56B2:				
Dana-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
56C2:				
Dana-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
67A:				
Harpster-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
68A:				
Sable-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
86B:				
Osc-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
88C:				
Sparta-----	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.31
	Thickest layer	0.00	Bottom layer	0.67
119C2:				
Elco-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00

Soil Survey of Macon County, Illinois

Table 16b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
132A: Starks-----	Poor		Poor	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.00
134B: Camden-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
136A: Brooklyn-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
138A: Shiloh-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
148B: Proctor-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
148C2: Proctor-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
152A: Drummer-----	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
153A: Pella-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
154A: Flanagan-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
171B: Catlin-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
198A: Elburn-----	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.05
199A: Plano-----	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.07

Soil Survey of Macon County, Illinois

Table 16b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
199B:				
Plano-----	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.07
199C2:				
Plano-----	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.07
206A:				
Thorp-----	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
233B:				
Birkbeck-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
234A:				
Sunbury-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
236A:				
Sabina-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
244A:				
Hartsburg-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
257A:				
Clarksdale-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
279B:				
Rozetta-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
291B:				
Xenia-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
322C2:				
Russell-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
330A:				
Peotone-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00

Soil Survey of Macon County, Illinois

Table 16b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
348B:				
Wingate-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
481A:				
Raub-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
533:				
Urban land-----	Not rated		Not rated	
618C2:				
Senachwine-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
618D2:				
Senachwine-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
618D3:				
Senachwine-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
618F:				
Senachwine-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
618G:				
Senachwine-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
622B2:				
Wyanet-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
622C2:				
Wyanet-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
675B:				
Greenbush-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
679B:				
Blackberry-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00

Soil Survey of Macon County, Illinois

Table 16b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
684B: Broadwell-----	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.09
687C2: Penfield-----	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.10
705B: Buckhart-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
712A: Spaulding-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
722A: Drummer-----	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
Milford-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
737B: Tama, very deep to sand-----	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.15
749B: Buckhart, till substratum-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
802B: Orthents, loamy----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
802D: Orthents, loamy----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
865: Pits, gravel-----	Not rated		Not rated	
1083A: Wabash, undrained---	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00

Soil Survey of Macon County, Illinois

Table 16b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
1107A: Sawmill, undrained--	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3073A: Ross-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3077A: Huntsville-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3083A: Wabash-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3107A: Sawmill-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3284A: Tice-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3333A: Wakeland-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3352A: Palms-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3451A: Lawson-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
7134B: Camden, rarely flooded-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
7136A: Brooklyn, rarely flooded-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
7198A: Elburn-----	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.05

Soil Survey of Macon County, Illinois

Table 16b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
7199B: Plano-----	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.07
7802B: Orthents, loamy, rarely flooded----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
7865: Pits, gravel-----	Not rated		Not rated	
8070A: Beaucoup-----	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00

Soil Survey of Macon County, Illinois

Table 17a.--Water Management

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
43A: Ipava-----	Somewhat limited Seepage	0.72	Very limited Depth to saturated zone	1.00	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
45A: Denny-----	Somewhat limited Seepage	0.04	Very limited Ponding Depth to saturated zone Piping	1.00 1.00 0.16	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
56B: Dana-----	Somewhat limited Seepage Slope	0.72 0.08	Somewhat limited Depth to saturated zone Piping	0.68 0.06	Very limited Depth to water	1.00
56B2: Dana-----	Somewhat limited Seepage Slope	0.72 0.08	Somewhat limited Depth to saturated zone Piping	0.95 0.10	Very limited Depth to water	1.00
56C2: Dana-----	Somewhat limited Slope Seepage	0.98 0.72	Very limited Depth to saturated zone Piping	1.00 0.13	Very limited Depth to water	1.00
67A: Harpster-----	Somewhat limited Seepage	0.72	Very limited Depth to saturated zone Ponding Piping	1.00 1.00 0.02	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
68A: Sable-----	Somewhat limited Seepage	0.72	Very limited Ponding Depth to saturated zone Piping	1.00 1.00 0.01	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
86B: Osco-----	Somewhat limited Seepage Slope	0.72 0.02	Somewhat limited Piping	0.01	Very limited Depth to water	1.00
88C: Sparta-----	Very limited Seepage Slope	1.00 0.92	Somewhat limited Seepage	0.67	Very limited Depth to water	1.00

Soil Survey of Macon County, Illinois

Table 17a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
119C2: Elco-----	Somewhat limited Slope Seepage	0.98 0.72	Somewhat limited Depth to saturated zone Piping	0.68 0.02	Very limited Depth to water	1.00
132A: Starks-----	Somewhat limited Seepage	0.72	Very limited Depth to saturated zone Piping Seepage	1.00 0.77 0.01	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
134B: Camden-----	Very limited Seepage Slope	1.00 0.02	Somewhat limited Piping	0.64	Very limited Depth to water	1.00
136A: Brooklyn-----	Somewhat limited Seepage	0.72	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Depth to water	1.00
138A: Shiloh-----	Somewhat limited Seepage	0.04	Very limited Ponding Depth to saturated zone Hard to pack	1.00 1.00 0.23	Somewhat limited Slow refill Cutbanks cave	0.96 0.10
148B: Proctor-----	Very limited Seepage Slope	1.00 0.08	Somewhat limited Piping	0.72	Very limited Depth to water	1.00
148C2: Proctor-----	Somewhat limited Slope Seepage	0.98 0.72	Somewhat limited Piping	0.15	Very limited Depth to water	1.00
152A: Drummer-----	Somewhat limited Seepage	0.72	Very limited Ponding Depth to saturated zone Piping Seepage	1.00 1.00 0.03 0.01	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
153A: Pella-----	Very limited Seepage	1.00	Very limited Ponding Depth to saturated zone Piping	1.00 1.00 0.67	Very limited Cutbanks cave	1.00
154A: Flanagan-----	Somewhat limited Seepage	0.72	Very limited Depth to saturated zone Piping	1.00 0.09	Somewhat limited Slow refill Cutbanks cave	0.28 0.10

Soil Survey of Macon County, Illinois

Table 17a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
171B: Catlin-----	Somewhat limited Seepage	0.72	Somewhat limited Depth to saturated zone Piping	0.75 0.16	Very limited Depth to water	1.00
198A: Elburn-----	Very limited Seepage	1.00	Very limited Depth to saturated zone Piping Seepage	1.00 0.08 0.05	Very limited Cutbanks cave	1.00
199A: Plano-----	Very limited Seepage	1.00	Somewhat limited Piping Seepage	0.28 0.07	Very limited Depth to water	1.00
199B: Plano-----	Very limited Seepage Slope	1.00 0.02	Somewhat limited Piping Seepage	0.41 0.07	Very limited Depth to water	1.00
199C2: Plano-----	Very limited Seepage Slope	1.00 0.98	Somewhat limited Piping Seepage	0.74 0.07	Very limited Depth to water	1.00
206A: Thorp-----	Very limited Seepage	1.00	Very limited Depth to saturated zone Ponding Piping Seepage	1.00 1.00 0.48 0.01	Very limited Cutbanks cave	1.00
233B: Birkbeck-----	Somewhat limited Seepage Slope	0.72 0.02	Somewhat limited Depth to saturated zone Piping	0.86 0.14	Very limited Depth to water	1.00
234A: Sunbury-----	Somewhat limited Seepage	0.72	Very limited Depth to saturated zone Piping	1.00 0.15	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
236A: Sabina-----	Somewhat limited Seepage	0.72	Very limited Depth to saturated zone Piping	1.00 0.18	Very limited Depth to water	1.00
244A: Hartsburg-----	Somewhat limited Seepage	0.72	Very limited Ponding Depth to saturated zone Piping	1.00 1.00 0.04	Somewhat limited Slow refill Cutbanks cave	0.28 0.10

Soil Survey of Macon County, Illinois

Table 17a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
257A: Clarksdale-----	Somewhat limited Seepage	0.72	Very limited Depth to saturated zone Piping	1.00 0.01	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
279B: Rozetta-----	Somewhat limited Seepage Slope	0.72 0.02	Somewhat limited Piping	0.01	Very limited Depth to water	1.00
291B: Xenia-----	Somewhat limited Seepage Slope	0.72 0.08	Very limited Depth to saturated zone Piping	1.00 0.14	Very limited Depth to water	1.00
322C2: Russell-----	Very limited Slope Seepage	1.00 0.72	Somewhat limited Piping	0.02	Very limited Depth to water	1.00
330A: Peotone-----	Somewhat limited Seepage	0.04	Very limited Ponding Depth to saturated zone Hard to pack	1.00 1.00 0.18	Somewhat limited Slow refill Cutbanks cave	0.96 0.10
348B: Wingate-----	Somewhat limited Seepage Slope	0.72 0.08	Somewhat limited Depth to saturated zone Piping	0.95 0.47	Very limited Depth to water	1.00
481A: Raub-----	Somewhat limited Seepage	0.72	Very limited Depth to saturated zone Piping	1.00 0.67	Very limited Depth to water	1.00
533: Urban land-----	Not rated		Not rated		Not rated	
618C2: Senachwine-----	Very limited Slope Seepage	1.00 0.72	Somewhat limited Piping	0.53	Very limited Depth to water	1.00
618D2: Senachwine-----	Very limited Slope Seepage	1.00 0.72	Somewhat limited Piping	0.43	Very limited Depth to water	1.00
618D3: Senachwine-----	Very limited Slope Seepage	1.00 0.72	Very limited Piping	1.00	Very limited Depth to water	1.00

Soil Survey of Macon County, Illinois

Table 17a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
618F: Senachwine-----	Very limited Slope Seepage	1.00 0.72	Somewhat limited Piping	0.54	Very limited Depth to water	1.00
618G: Senachwine-----	Very limited Slope Seepage	1.00 0.72	Somewhat limited Piping	0.60	Very limited Depth to water	1.00
622B2: Wyanet-----	Somewhat limited Seepage Slope	0.72 0.02	Somewhat limited Piping	0.34	Very limited Depth to water	1.00
622C2: Wyanet-----	Somewhat limited Slope Seepage	0.98 0.72	Somewhat limited Piping	0.47	Very limited Depth to water	1.00
675B: Greenbush-----	Somewhat limited Seepage Slope	0.72 0.02	Somewhat limited Piping	0.01	Very limited Depth to water Slow refill	1.00 0.28
679B: Blackberry-----	Somewhat limited Seepage Slope	0.72 0.02	Somewhat limited Depth to saturated zone Piping	0.68 0.10	Somewhat limited Slow refill Depth to saturated zone Cutbanks cave	0.28 0.14 0.10
684B: Broadwell-----	Very limited Seepage Slope	1.00 0.02	Somewhat limited Piping Seepage	0.93 0.09	Very limited Depth to water	1.00
687C2: Penfield-----	Very limited Seepage Slope	1.00 0.92	Somewhat limited Piping Seepage	0.65 0.10	Very limited Depth to water	1.00
705B: Buckhart-----	Somewhat limited Seepage Slope	0.72 0.02	Somewhat limited Depth to saturated zone Piping	0.68 0.01	Somewhat limited Slow refill Depth to saturated zone Cutbanks cave	0.28 0.14 0.10
712A: Spaulding-----	Somewhat limited Seepage	0.72	Very limited Ponding Depth to saturated zone Piping	1.00 1.00 0.04	Somewhat limited Slow refill Cutbanks cave	0.28 0.10

Soil Survey of Macon County, Illinois

Table 17a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
722A:						
Drummer-----	Somewhat limited Seepage	0.72	Very limited Ponding Depth to saturated zone Piping Seepage	1.00 1.00 0.03 0.01	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
Milford-----	Somewhat limited Seepage	0.72	Very limited Ponding Depth to saturated zone	1.00 1.00	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
737B:						
Tama, very deep to sand-----	Very limited Seepage Slope	1.00 0.02	Somewhat limited Piping Seepage	0.43 0.15	Very limited Depth to water	1.00
749B:						
Buckhart, till substratum-----	Somewhat limited Seepage Slope	0.72 0.02	Somewhat limited Depth to saturated zone Piping	0.68 0.17	Very limited Depth to water	1.00
802B:						
Orthents, loamy----	Somewhat limited Seepage Slope	0.47 0.08	Somewhat limited Piping	0.04	Somewhat limited Depth to saturated zone Slow refill Cutbanks cave	0.90 0.53 0.10
802D:						
Orthents, loamy----	Very limited Slope Seepage	1.00 0.47	Somewhat limited Piping	0.01	Somewhat limited Depth to saturated zone Slow refill Cutbanks cave	0.90 0.53 0.10
865:						
Pits, gravel-----	Not rated		Not rated		Not rated	
1083A:						
Wabash, undrained---	Not limited		Very limited Ponding Depth to saturated zone Hard to pack	1.00 1.00 0.77	Very limited Slow refill Cutbanks cave	1.00 0.10
1107A:						
Sawmill, undrained--	Somewhat limited Seepage	0.72	Very limited Ponding Depth to saturated zone	1.00 1.00	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
3073A:						
Ross-----	Very limited Seepage	1.00	Somewhat limited Piping	0.83	Somewhat limited Depth to saturated zone Cutbanks cave	0.96 0.10

Soil Survey of Macon County, Illinois

Table 17a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3077A: Huntsville-----	Somewhat limited Seepage	0.72	Somewhat limited Piping	0.50	Very limited Depth to saturated zone	1.00
					Slow refill	0.28
					Cutbanks cave	0.10
3083A: Wabash-----	Not limited		Very limited Ponding	1.00	Very limited Slow refill	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Hard to pack	0.77		
3107A: Sawmill-----	Somewhat limited Seepage	0.72	Very limited Ponding	1.00	Somewhat limited Slow refill	0.28
			Depth to saturated zone	1.00	Cutbanks cave	0.10
3284A: Tice-----	Somewhat limited Seepage	0.72	Very limited Depth to saturated zone	1.00	Somewhat limited Slow refill	0.28
					Cutbanks cave	0.10
3333A: Wakeland-----	Somewhat limited Seepage	0.72	Very limited Depth to saturated zone	1.00	Somewhat limited Slow refill	0.28
			Piping	1.00	Cutbanks cave	0.10
3352A: Palms-----	Very limited Seepage	1.00	Very limited Organic matter content	1.00	Somewhat limited Cutbanks cave	0.10
			Ponding	1.00		
			Depth to saturated zone	1.00		
			Piping	1.00		
3451A: Lawson-----	Somewhat limited Seepage	0.72	Somewhat limited Depth to saturated zone	0.86	Somewhat limited Slow refill	0.28
			Piping	0.39	Cutbanks cave	0.10
					Depth to saturated zone	0.06
7134B: Camden, rarely flooded-----	Very limited Seepage	1.00	Somewhat limited Piping	0.64	Very limited Depth to water	1.00
7136A: Brooklyn, rarely flooded-----	Somewhat limited Seepage	0.72	Very limited Ponding	1.00	Very limited Depth to water	1.00
			Depth to saturated zone	1.00		

Soil Survey of Macon County, Illinois

Table 17a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7198A: Elburn-----	Very limited Seepage	1.00	Very limited Depth to saturated zone Piping Seepage	1.00 0.08 0.05	Very limited Cutbanks cave	1.00
7199B: Plano-----	Very limited Seepage Slope	1.00 0.02	Somewhat limited Piping Seepage	0.23 0.07	Very limited Depth to water	1.00
7802B: Orthents, loamy, rarely flooded----	Somewhat limited Seepage Slope	0.47 0.08	Somewhat limited Piping	0.58	Somewhat limited Depth to saturated zone Slow refill Cutbanks cave	0.90 0.53 0.10
7865: Pits, gravel-----	Not rated		Not rated		Not rated	
8070A: Beaucoup-----	Somewhat limited Seepage	0.04	Very limited Ponding Depth to saturated zone Piping	1.00 1.00 0.04	Somewhat limited Slow refill Cutbanks cave	0.96 0.10

Soil Survey of Macon County, Illinois

Table 17b.--Water Management

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Constructing grassed waterways and surface drains		Constructing terraces and diversions		Tile drains and underground outlets	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
43A: Ipava-----	Not limited		Very limited Water erosion Depth to saturated zone	1.00 1.00	Somewhat limited Restricted permeability Frost action Deep to water	0.21 0.10 0.03
45A: Denny-----	Not limited		Very limited Water erosion Ponding Depth to saturated zone	1.00 1.00 1.00	Very limited Restricted permeability Frequent ponding Frost action	0.96 0.33 0.10
56B: Dana-----	Somewhat limited Slope	0.37	Very limited Water erosion Depth to saturated zone Slope	1.00 1.00 0.37	Somewhat limited Deep to water Frost action Slope	0.37 0.10 0.04
56B2: Dana-----	Somewhat limited Slope	0.37	Very limited Water erosion Depth to saturated zone Slope	1.00 1.00 0.37	Somewhat limited Deep to water Frost action Slope	0.17 0.10 0.04
56C2: Dana-----	Somewhat limited Slope	0.99	Very limited Water erosion Depth to saturated zone Slope	1.00 1.00 0.99	Somewhat limited Slope Deep to water Frost action	0.74 0.11 0.10
67A: Harpster-----	Not limited		Very limited Water erosion Ponding Depth to saturated zone	1.00 1.00 1.00	Somewhat limited Frequent ponding Frost action	0.33 0.10
68A: Sable-----	Not limited		Very limited Water erosion Ponding Depth to saturated zone	1.00 1.00 1.00	Somewhat limited Frequent ponding Frost action	0.33 0.10

Soil Survey of Macon County, Illinois

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains	Value	Constructing terraces and diversions	Value	Tile drains and underground outlets	
	Rating class and limiting features		Rating class and limiting features		Rating class and limiting features	Value
86B: Osco-----	Somewhat limited Slope	0.26	Very limited Water erosion Slope	1.00 0.26	Very limited Very deep to water Frost action Slope	1.00 0.10 0.01
88C: Sparta-----	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Very deep to water Slope Cutbanks cave Depth to dense layer	1.00 0.63 0.50 0.35
119C2: Elco-----	Somewhat limited Slope	0.99	Very limited Water erosion Depth to saturated zone Slope	1.00 1.00 0.99	Somewhat limited Slope Restricted permeability Deep to water Frost action	0.74 0.43 0.37 0.10
132A: Starks-----	Not limited		Very limited Water erosion Depth to saturated zone	1.00 1.00	Somewhat limited Restricted permeability Frost action Deep to water	0.21 0.10 0.06
134B: Camden-----	Somewhat limited Slope	0.26	Very limited Water erosion Slope	1.00 0.26	Very limited Very deep to water Frost action Slope	1.00 0.10 0.01
136A: Brooklyn-----	Not limited		Very limited Water erosion Ponding Depth to saturated zone	1.00 1.00 1.00	Very limited Restricted permeability Frequent ponding Frost action	0.96 0.33 0.10
138A: Shiloh-----	Not limited		Very limited Ponding Depth to saturated zone Water erosion	1.00 1.00 0.88	Somewhat limited Frequent ponding Restricted permeability Frost action	0.47 0.21 0.10
148B: Proctor-----	Somewhat limited Slope	0.37	Very limited Water erosion Slope	1.00 0.37	Very limited Very deep to water Frost action Slope	1.00 0.10 0.04

Soil Survey of Macon County, Illinois

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains	Value	Constructing terraces and diversions	Value	Tile drains and underground outlets	
	Rating class and limiting features		Rating class and limiting features		Rating class and limiting features	Value
148C2: Proctor-----	Somewhat limited Slope	0.99	Very limited Water erosion Slope	1.00 0.99	Very limited Very deep to water Slope Frost action	1.00 0.74 0.10
152A: Drummer-----	Not limited		Very limited Water erosion Ponding Depth to saturated zone	1.00 1.00 1.00	Somewhat limited Frequent ponding Frost action	0.33 0.10
153A: Pella-----	Not limited		Very limited Water erosion Ponding Depth to saturated zone	1.00 1.00 1.00	Somewhat limited Cutbanks cave Frequent ponding Frost action	0.50 0.33 0.10
154A: Flanagan-----	Not limited		Very limited Water erosion Depth to saturated zone	1.00 1.00	Somewhat limited Restricted permeability Frost action Deep to water	0.21 0.10 0.03
171B: Catlin-----	Somewhat limited Slope	0.16	Very limited Water erosion Depth to saturated zone Slope	1.00 1.00 0.16	Somewhat limited Deep to water Frost action	0.32 0.10
198A: Elburn-----	Not limited		Very limited Water erosion Depth to saturated zone	1.00 1.00	Somewhat limited Frost action Deep to water	0.10 0.03
199A: Plano-----	Not limited		Very limited Water erosion	1.00	Very limited Very deep to water Frost action	1.00 0.10
199B: Plano-----	Somewhat limited Slope	0.26	Very limited Water erosion Slope	1.00 0.26	Very limited Very deep to water Frost action Slope	1.00 0.10 0.01
199C2: Plano-----	Somewhat limited Slope	0.99	Very limited Water erosion Slope	1.00 0.99	Very limited Very deep to water Slope Frost action	1.00 0.74 0.10

Soil Survey of Macon County, Illinois

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains	Value	Constructing terraces and diversions	Value	Tile drains and underground outlets	Value
	Rating class and limiting features		Rating class and limiting features		Rating class and limiting features	
206A: Thorp-----	Not limited		Very limited Water erosion Ponding Depth to saturated zone	1.00 1.00 1.00	Very limited Restricted permeability Frequent ponding Frost action	0.96 0.33 0.10
233B: Birkbeck-----	Somewhat limited Slope	0.26	Very limited Water erosion Depth to saturated zone Slope	1.00 1.00 0.26	Somewhat limited Deep to water Frost action Slope	0.25 0.10 0.01
234A: Sunbury-----	Not limited		Very limited Water erosion Depth to saturated zone	1.00 1.00	Somewhat limited Restricted permeability Frost action Deep to water	0.21 0.10 0.01
236A: Sabina-----	Not limited		Very limited Water erosion Depth to saturated zone	1.00 1.00	Somewhat limited Restricted permeability Frost action Deep to water	0.21 0.10 0.01
244A: Hartsburg-----	Not limited		Very limited Water erosion Ponding Depth to saturated zone	1.00 1.00 1.00	Somewhat limited Frequent ponding Frost action	0.33 0.10
257A: Clarksdale-----	Not limited		Very limited Water erosion Depth to saturated zone	1.00 1.00	Somewhat limited Restricted permeability Frost action Deep to water	0.21 0.10 0.02
279B: Rozetta-----	Somewhat limited Slope	0.26	Very limited Water erosion Slope	1.00 0.26	Very limited Very deep to water Frost action Slope	1.00 0.10 0.01
291B: Xenia-----	Somewhat limited Slope	0.37	Very limited Water erosion Depth to saturated zone Slope	1.00 1.00 0.37	Somewhat limited Frost action Slope Deep to water	0.10 0.04 0.03

Soil Survey of Macon County, Illinois

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains		Constructing terraces and diversions		Tile drains and underground outlets	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
322C2: Russell-----	Very limited Slope	1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Very deep to water Slope Frost action	1.00 0.84 0.10
330A: Peotone-----	Not limited		Very limited Ponding Depth to saturated zone Water erosion	1.00 1.00 0.50	Somewhat limited Frequent ponding Restricted permeability Frost action	0.47 0.21 0.10
348B: Wingate-----	Somewhat limited Slope	0.37	Very limited Water erosion Depth to saturated zone Slope	1.00 1.00 0.37	Somewhat limited Deep to water Frost action Slope	0.17 0.10 0.04
481A: Raub-----	Not limited		Very limited Water erosion Depth to saturated zone	1.00 1.00	Somewhat limited Frost action Deep to water	0.10 0.03
533: Urban land-----	Not rated		Not rated		Not rated	
618C2: Senachwine-----	Very limited Slope	1.00	Very limited Slope Water erosion	1.00 0.88	Very limited Very deep to water Slope Depth to dense layer Restricted permeability	1.00 0.84 0.71 0.21
618D2: Senachwine-----	Very limited Slope	1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope Very deep to water Restricted permeability Depth to dense layer	1.00 1.00 0.21 0.16
618D3: Senachwine-----	Very limited Slope	1.00	Very limited Slope Water erosion	1.00 0.12	Very limited Slope Very deep to water Depth to dense layer Restricted permeability	1.00 1.00 0.84 0.21

Soil Survey of Macon County, Illinois

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains		Constructing terraces and diversions		Tile drains and underground outlets	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
618F: Senachwine-----	Very limited Slope	1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope Very deep to water	1.00 1.00
618G: Senachwine-----	Very limited Slope	1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope Very deep to water Restricted permeability Depth to dense layer	1.00 1.00 0.21 0.01
622B2: Wyanet-----	Somewhat limited Slope	0.26	Somewhat limited Water erosion Slope	0.88 0.26	Very limited Very deep to water Depth to dense layer Restricted permeability Slope	1.00 0.29 0.21 0.01
622C2: Wyanet-----	Somewhat limited Slope	0.99	Somewhat limited Slope Water erosion	0.99 0.88	Very limited Very deep to water Slope Restricted permeability Depth to dense layer	1.00 0.74 0.21 0.16
675B: Greenbush-----	Somewhat limited Slope	0.26	Very limited Water erosion Slope	1.00 0.26	Very limited Very deep to water Frost action Slope	1.00 0.10 0.01
679B: Blackberry-----	Somewhat limited Slope	0.26	Very limited Water erosion Depth to saturated zone Slope	1.00 1.00 0.26	Somewhat limited Deep to water Frost action Slope	0.37 0.10 0.01
684B: Broadwell-----	Somewhat limited Slope	0.26	Very limited Water erosion Slope	1.00 0.26	Very limited Very deep to water Frost action Slope	1.00 0.10 0.01

Soil Survey of Macon County, Illinois

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains		Constructing terraces and diversions		Tile drains and underground outlets	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
687C2: Penfield-----	Somewhat limited Slope	0.96	Somewhat limited Slope Water erosion	0.96 0.88	Very limited Very deep to water Slope	1.00 0.63
705B: Buckhart-----	Somewhat limited Slope	0.26	Very limited Water erosion Depth to saturated zone Slope	1.00 1.00 0.26	Somewhat limited Deep to water Frost action Slope	0.37 0.10 0.01
712A: Spaulding-----	Not limited		Very limited Water erosion Ponding Depth to saturated zone	1.00 1.00 1.00	Somewhat limited Frequent ponding Frost action	0.33 0.10
722A: Drummer-----	Not limited		Very limited Water erosion Ponding Depth to saturated zone	1.00 1.00 1.00	Somewhat limited Frequent ponding Frost action	0.33 0.10
Milford-----	Not limited		Very limited Ponding Depth to saturated zone Water erosion	1.00 1.00 0.88	Somewhat limited Frequent ponding Restricted permeability Frost action	0.33 0.21 0.10
737B: Tama, very deep to sand-----	Somewhat limited Slope	0.26	Very limited Water erosion Slope	1.00 0.26	Very limited Very deep to water Frost action Slope	1.00 0.10 0.01
749B: Buckhart, till substratum-----	Somewhat limited Slope	0.26	Very limited Water erosion Depth to saturated zone Slope	1.00 1.00 0.26	Somewhat limited Deep to water Frost action Slope	0.37 0.10 0.01
802B: Orthents, loamy----	Somewhat limited Slope	0.37	Very limited Water erosion Slope	1.00 0.37	Very limited Very deep to water Restricted permeability Slope	1.00 0.21 0.04

Soil Survey of Macon County, Illinois

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains	Value	Constructing terraces and diversions	Value	Tile drains and underground outlets	Value
	Rating class and limiting features		Rating class and limiting features		Rating class and limiting features	
802D: Orthents, loamy-----	Very limited Slope	1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Very deep to water Slope Restricted permeability	1.00 1.00 0.21
865: Pits, gravel-----	Not rated		Not rated		Not rated	
1083A: Wabash, undrained--	Not limited		Very limited Ponding Depth to saturated zone Water erosion	1.00 1.00 0.50	Very limited Restricted permeability Frequent ponding Frequent flooding Frost action	1.00 0.95 0.35 0.10
1107A: Sawmill, undrained--	Not limited		Very limited Ponding Depth to saturated zone Water erosion	1.00 1.00 0.50	Somewhat limited Frequent ponding Frequent flooding Frost action	0.74 0.35 0.10
3073A: Ross-----	Not limited		Somewhat limited Water erosion	0.88	Very limited Very deep to water Frequent flooding	1.00 0.35
3077A: Huntsville-----	Not limited		Somewhat limited Water erosion	0.88	Very limited Very deep to water Frequent flooding Frost action	1.00 0.35 0.10
3083A: Wabash-----	Not limited		Very limited Ponding Depth to saturated zone Water erosion	1.00 1.00 0.50	Very limited Restricted permeability Frequent ponding Frequent flooding Frost action	1.00 0.47 0.35 0.10
3107A: Sawmill-----	Not limited		Very limited Ponding Depth to saturated zone Water erosion	1.00 1.00 0.50	Somewhat limited Frequent flooding Frequent ponding Frost action	0.35 0.33 0.10
3284A: Tice-----	Not limited		Very limited Water erosion Depth to saturated zone	1.00 1.00	Somewhat limited Frequent flooding Frost action Deep to water	0.35 0.10 0.06

Soil Survey of Macon County, Illinois

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains	Value	Constructing terraces and diversions	Value	Tile drains and underground outlets	
	Rating class and limiting features		Rating class and limiting features		Rating class and limiting features	Value
3333A: Wakeland-----	Not limited		Very limited Water erosion Depth to saturated zone	1.00 1.00	Somewhat limited Frequent flooding Frost action	0.35 0.10
3352A: Palms-----	Not limited		Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Subsidence Frequent ponding Frequent flooding Frost action	1.00 0.95 0.35 0.10
3451A: Lawson-----	Not limited		Very limited Depth to saturated zone Water erosion	1.00 0.88	Somewhat limited Frequent flooding Deep to water Frost action	0.35 0.25 0.10
7134B: Camden, rarely flooded-----	Somewhat limited Slope	0.09	Very limited Water erosion Slope	1.00 0.09	Very limited Very deep to water Frost action Rare flooding	1.00 0.10 0.05
7136A: Brooklyn, rarely flooded-----	Not limited		Very limited Water erosion Ponding Depth to saturated zone	1.00 1.00 1.00	Very limited Restricted permeability Frequent ponding Frost action Rare flooding	0.96 0.33 0.10 0.05
7198A: Elburn-----	Not limited		Very limited Water erosion Depth to saturated zone	1.00 1.00	Somewhat limited Frost action Rare flooding Deep to water	0.10 0.05 0.03
7199B: Plano-----	Somewhat limited Slope	0.26	Very limited Water erosion Slope	1.00 0.26	Very limited Very deep to water Frost action Rare flooding Slope	1.00 0.10 0.05 0.01
7802B: Orthents, loamy, rarely flooded----	Somewhat limited Slope	0.37	Very limited Water erosion Slope	1.00 0.37	Very limited Very deep to water Restricted permeability Rare flooding Slope	1.00 0.21 0.05 0.04

Soil Survey of Macon County, Illinois

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains	Value	Constructing terraces and diversions	Value	Tile drains and underground outlets	Value
	Rating class and limiting features		Rating class and limiting features		Rating class and limiting features	
7865: Pits, gravel-----	Not rated		Not rated		Not rated	
8070A: Beaucoup-----	Not limited		Very limited		Somewhat limited	
			Ponding	1.00	Frequent ponding	0.33
			Depth to saturated zone	1.00	Restricted permeability	0.21
			Water erosion	0.88	Occasional flooding	0.10
					Frost action	0.10

Soil Survey of Macon County, Illinois

Table 17c.--Water Management

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Sprinkler irrigation		Drip or trickle irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value
43A: Ipava-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
45A: Denny-----	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
56B: Dana-----	Not limited		Not limited	
56B2: Dana-----	Very limited Water erosion	1.00	Not limited	
56C2: Dana-----	Somewhat limited Slope	0.06	Not limited	
67A: Harpster-----	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
68A: Sable-----	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
86B: Osco-----	Not limited		Not limited	
88C: Sparta-----	Very limited Intake rate Wind erosion Available water capacity	1.00 1.00 1.00	Not limited	
119C2: Elco-----	Very limited Water erosion Slope	1.00 0.06	Not limited	
132A: Starks-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Soil Survey of Macon County, Illinois

Table 17c.--Water Management--Continued

Map symbol and soil name	Sprinkler irrigation		Drip or trickle irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value
134B: Camden-----	Very limited Water erosion	1.00	Not limited	
136A: Brooklyn-----	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
138A: Shiloh-----	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
148B: Proctor-----	Not limited		Not limited	
148C2: Proctor-----	Very limited Water erosion Slope	1.00 0.06	Not limited	
152A: Drummer-----	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
153A: Pella-----	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
154A: Flanagan-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
171B: Catlin-----	Very limited Water erosion	1.00	Not limited	
198A: Elburn-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
199A: Plano-----	Not limited		Not limited	
199B: Plano-----	Not limited		Not limited	
199C2: Plano-----	Very limited Water erosion Slope	1.00 0.06	Not limited	

Soil Survey of Macon County, Illinois

Table 17c.--Water Management--Continued

Map symbol and soil name	Sprinkler irrigation		Drip or trickle irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value
206A: Thorp-----	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
233B: Birkbeck-----	Very limited Water erosion	1.00	Not limited	
234A: Sunbury-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
236A: Sabina-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
244A: Hartsburg-----	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
257A: Clarksdale-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
279B: Rozetta-----	Very limited Water erosion	1.00	Not limited	
291B: Xenia-----	Very limited Depth to saturated zone Water erosion	1.00 1.00	Very limited Depth to saturated zone	1.00
322C2: Russell-----	Very limited Water erosion Slope	1.00 0.10	Not limited	
330A: Peotone-----	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
348B: Wingate-----	Very limited Water erosion	1.00	Not limited	
481A: Raub-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Soil Survey of Macon County, Illinois

Table 17c.--Water Management--Continued

Map symbol and soil name	Sprinkler irrigation		Drip or trickle irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value
533: Urban land-----	Not rated		Not rated	
618C2: Senachwine-----	Somewhat limited Available water capacity Slope Sodium content	0.13 0.10 0.05	Somewhat limited Sodium content	0.05
618D2: Senachwine-----	Very limited Water erosion Slope Available water capacity	1.00 0.98 0.08	Somewhat limited Sodium content	0.05
618D3: Senachwine-----	Somewhat limited Slope Available water capacity	0.98 0.30	Not limited	
618F: Senachwine-----	Very limited Slope Water erosion	1.00 1.00	Not limited	
618G: Senachwine-----	Very limited Slope Water erosion Sodium content	1.00 1.00 0.05	Somewhat limited Sodium content	0.05
622B2: Wyanet-----	Somewhat limited Available water capacity Sodium content	0.31 0.05	Somewhat limited Sodium content	0.05
622C2: Wyanet-----	Somewhat limited Available water capacity Slope Sodium content	0.28 0.06 0.05	Somewhat limited Sodium content	0.05
675B: Greenbush-----	Very limited Water erosion	1.00	Not limited	
679B: Blackberry-----	Not limited		Not limited	
684B: Broadwell-----	Not limited		Not limited	

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Table 17c.--Water Management--Continued

Map symbol and soil name	Sprinkler irrigation		Drip or trickle irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value
687C2: Penfield-----	Somewhat limited Available water capacity Slope	0.27 0.02	Not limited	
705B: Buckhart-----	Not limited		Not limited	
712A: Spaulding-----	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
722A: Drummer-----	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Milford-----	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
737B: Tama, very deep to sand-----	Not limited		Not limited	
749B: Buckhart, till substratum-----	Not limited		Not limited	
802B: Orthents, loamy----	Not rated		Not rated	
802D: Orthents, loamy----	Not rated		Not rated	
865: Pits, gravel-----	Not rated		Not rated	
1083A: Wabash, undrained--	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
1107A: Sawmill, undrained--	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
3073A: Ross-----	Very limited Flooding	1.00	Very limited Flooding	1.00

Soil Survey of Macon County, Illinois

Table 17c.--Water Management--Continued

Map symbol and soil name	Sprinkler irrigation		Drip or trickle irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value
3077A: Huntsville-----	Very limited Flooding	1.00	Very limited Flooding	1.00
3083A: Wabash-----	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
3107A: Sawmill-----	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
3284A: Tice-----	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
3333A: Wakeland-----	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
3352A: Palms-----	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
3451A: Lawson-----	Very limited Flooding Depth to saturated zone	1.00 0.47	Very limited Flooding	1.00
7134B: Camden, rarely flooded-----	Very limited Water erosion	1.00	Not limited	
7136A: Brooklyn, rarely flooded-----	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
7198A: Elburn-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Soil Survey of Macon County, Illinois

Table 17c.--Water Management--Continued

Map symbol and soil name	Sprinkler irrigation		Drip or trickle irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value
7199B: Plano-----	Not limited		Not limited	
7802B: Orthents, loamy, rarely flooded----	Very limited Water erosion Available water capacity	1.00 0.05	Not limited	
7865: Pits, gravel-----	Not rated		Not rated	
8070A: Beaucoup-----	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00

Table 18.--Engineering Index Properties
(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches						
							4	10	40	200		
	In				Pct	Pct					Pct	
43A: Ipava-----	0-10	Silt loam	CL, ML	A-7-5, A-7-6, A-6, A-4	0	0	100	100	97-100	95-100	32-47	9-18
	10-18	Silty clay loam	MH, CH, CL	A-7-6, A-7-5	0	0	100	100	97-100	95-100	40-52	19-25
	18-31	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	97-100	95-100	46-58	25-33
	31-50	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	97-100	95-100	37-46	19-25
	50-60	Silt loam	CL	A-6, A-4	0	0	100	100	96-100	93-100	24-38	9-19
45A: Denny-----	0-8	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	95-100	30-40	8-15
	8-21	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	95-100	25-40	5-15
	21-46	Silty clay loam, silty clay	CH, CL	A-6, A-7-6, A-7-5	0	0	100	100	95-100	95-100	35-60	20-35
	46-80	Silt loam, silty clay loam	CL	A-6	0	0	100	100	95-100	95-100	25-40	11-20
56B: Dana-----	0-11	Silt loam	CL, ML	A-7-5, A-7-6, A-6	0	0	100	100	95-100	85-98	33-47	11-18
	11-32	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	85-98	38-48	19-25
	32-58	Clay loam	CL	A-6, A-7-6	0	0-3	90-98	90-98	80-95	60-85	37-47	19-25
	58-80	Loam	CL, SC	A-4, A-6	0-1	0-3	85-100	75-98	65-95	40-80	22-35	7-17
56B2: Dana-----	0-7	Silt loam	CL, ML	A-6, A-7-6	0	0	100	97-100	95-100	85-98	32-44	13-18
	7-34	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	90-100	85-98	38-48	19-25
	34-53	Clay loam	CL	A-7-6, A-6	0	0	95-100	85-98	80-95	55-85	37-46	19-25
	53-80	Loam	CL, SC	A-4, A-6	0-1	0-3	85-100	75-98	65-95	40-80	22-35	7-17
56C2: Dana-----	0-8	Silty clay loam	CL	A-7-5, A-7-6	0	0	100	97-100	95-100	85-98	40-48	19-21
	8-32	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-100	85-98	38-48	19-25
	32-47	Clay loam	CL	A-7-6, A-6	0	0	95-100	80-100	75-98	50-85	37-46	19-25
	47-80	Loam	CL, SC	A-4, A-6	0-1	0-3	85-100	75-98	65-95	40-80	22-35	7-17

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
67A:												
Harpster-----	0-18	Silty clay loam	CL, MH	A-7-6, A-7-5	0	0	100	97-100	95-100	85-98	46-57	18-22
	18-41	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-100	85-98	40-51	19-23
	41-56	Silt loam	CL	A-6, A-4	0	0	100	97-100	85-100	70-98	26-38	9-18
	56-60	Loam, silt loam	CL	A-6, A-4	0	0	100	95-100	80-95	50-75	25-37	9-18
68A:												
Sable-----	0-23	Silty clay loam	MH, CL, ML	A-7-6, A-7-5	0	0	100	100	97-100	95-100	46-57	18-24
	23-38	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	97-100	95-100	38-48	19-25
	38-47	Silt loam, silty clay loam	CL	A-6	0	0	100	100	97-100	95-100	32-38	16-19
	47-60	Silt loam	CL	A-6	0	0	100	100	97-100	95-100	29-38	13-19
86B:												
Osc-----	0-14	Silt loam	CL, ML	A-7-6, A-6	0	0	100	100	100	95-100	35-44	13-18
	14-55	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	34-47	16-25
	55-60	Silt loam, silty clay loam	CL	A-6	0	0	100	100	100	95-100	29-40	13-21
88C:												
Sparta-----	0-12	Loamy sand	SM, SC-SM	A-2-4	0	0	100	95-100	65-90	12-35	20-31	1-6
	12-31	Loamy sand	SC-SM, SM	A-2-4	0	0	100	92-100	60-90	10-35	0-26	NP-8
	31-80	Stratified sand to loamy sand, sand	SM, SP, SP-SM	A-2-4, A-3	0	0	100	92-100	60-90	0-35	0-25	NP-8
119C2:												
Elco-----	0-8	Silt loam	CL, ML	A-6, A-4	0	0	100	100	95-100	90-100	25-40	8-15
	8-31	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	25-45	10-30
	31-60	Silty clay loam, loam, clay	CL	A-6, A-7-6	0	0	100	90-100	80-100	60-95	25-50	10-30

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
132A:												
Starks-----	0-8	Silt loam	CL, ML	A-6, A-4	0	0	100	97-100	95-100	85-100	24-40	9-15
	8-13	Silt loam	CL, ML	A-6, A-4	0	0	100	97-100	95-100	85-100	24-40	9-15
	13-36	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-100	85-100	37-46	17-24
	36-44	Sandy loam, sandy clay loam	SC, SM, CL, SC-SM, CL-ML	A-4, A-6, A- 2-4, A-2-6	0	0	100	90-100	50-100	30-70	22-35	4-15
	44-60	Stratified sandy loam to loam to sandy clay loam	SC, SC-SM, SM, CL-ML, CL, ML	A-2-4, A-4	0	0	85-100	75-100	40-100	25-70	19-28	2-10
134B:												
Camden-----	0-9	Silt loam	CL, CL-ML, ML	A-4, A-7-6, A-6	0	0	100	100	95-100	95-100	27-42	9-18
	9-14	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	95-100	25-38	9-19
	14-22	Silty clay loam, silt loam	CL	A-6	0	0	100	100	97-100	95-100	31-38	15-19
	22-35	Silty clay loam	CL	A-6, A-7-6	0	0	98-100	95-100	90-100	80-100	37-46	19-25
	35-52	Clay loam, loam, sandy loam	CL, SC	A-6	0	0	95-100	85-100	70-100	40-84	27-40	12-21
	52-80	Stratified sandy loam to loam to sandy clay loam	SC, CL-ML, CL, SC-SM, SM	A-4, A-6, A- 2-4, A-2-6	0	0	95-100	80-100	60-99	30-60	20-33	6-15
136A:												
Brooklyn-----	0-9	Silt loam	ML, CL	A-6, A-4	0	0	100	100	95-100	90-100	28-40	9-15
	9-14	Silt loam	CL	A-6, A-4	0	0	100	100	95-100	85-100	24-34	9-15
	14-40	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	95-100	90-100	45-56	25-33
	40-62	Clay loam, gravelly clay loam	CL, SC	A-6, A-7-6	0	0-2	75-95	70-90	55-90	40-80	37-50	19-29
	62-73	Stratified sandy loam to loam	SC-SM, SC, CL-ML, CL, ML	A-6, A-4, A- 2-4, A-2-6	0	0	85-100	80-100	55-100	30-85	20-37	6-19
	73-80	Loam	CL, SC	A-4, A-6	0-1	0-3	85-100	75-98	65-95	40-80	22-35	7-17

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
138A: Shiloh-----	0-19	Silty clay loam	MH	A-7-6, A-7-5	0	0	100	100	95-100	84-98	51-61	25-29
	19-48	Silty clay, silty clay loam	CH, MH	A-7-5, A-7-6	0	0	100	100	98-100	84-100	50-63	22-34
	48-68	Silty clay loam, silty clay	CL, CH	A-7-6	0	0	100	100	98-100	87-99	43-57	24-33
	68-80	Clay, silty clay, silty clay loam, clay loam	CL, CH	A-7-6	0	0	100	91-100	84-100	62-95	45-62	25-36
148B: Proctor-----	0-13	Silt loam	CL	A-6	0	0	100	100	97-100	90-100	25-40	10-20
	13-25	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	97-100	92-100	25-50	10-25
	25-45	Clay loam, sandy loam, loam, sandy clay loam	CL, SC	A-4, A-6	0	0	85-100	85-100	75-100	45-90	20-40	7-20
	45-60	Stratified sandy loam to silt loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	85-100	76-100	60-99	36-80	20-30	5-15
148C2: Proctor-----	0-13	Silt loam	CL, ML	A-7-6, A-6	0	0	100	97-100	95-100	85-98	32-44	13-18
	13-36	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-100	85-98	38-48	19-25
	36-46	Stratified clay loam to silt loam, loam	CL	A-6, A-7-6	0	0	95-100	85-100	80-100	55-90	31-42	13-21
	46-60	Stratified silt to sandy loam, loam, sandy loam, silt loam	ML, CL-ML, CL	A-4	0	0	100	95-100	80-100	50-80	16-27	2-10
152A: Drummer-----	0-14	Silty clay loam	MH, CL	A-7-6, A-7-5	0	0	100	97-100	95-100	85-100	46-60	18-24
	14-41	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-100	85-100	38-49	19-25
	41-47	Loam	CL	A-6	0	0	95-100	90-100	75-95	50-80	29-38	13-19
	47-60	Stratified loam to sandy loam	SC, CL, CL- ML, SC-SM	A-2-6, A-6, A-4, A-2-4	0	0	95-100	80-100	55-95	30-65	20-31	6-13

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
153A: Pella-----	0-15	Silty clay loam	CL, MH, ML	A-7-6, A-7-5	0	0	100	97-100	95-100	85-100	46-60	18-24
	15-21	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-100	85-100	38-49	19-25
	21-34	Silt loam	CL	A-6, A-4	0	0	100	97-100	85-100	70-100	25-38	9-19
	34-80	Stratified silt loam to loamy sand	CL, SC, ML, SM	A-4, A-6	0	0	85-100	76-100	60-99	36-80	16-32	2-13
154A: Flanagan-----	0-18	Silt loam	CL, ML	A-7-5, A-7-6, A-6	0	0	100	100	95-100	90-100	36-47	13-18
	18-38	Silty clay loam, silty clay	CL, CH	A-7-6	0	0	100	100	95-100	95-100	46-55	25-29
	38-45	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	95-100	95-100	35-46	17-25
	45-49	Silt loam, loam	CL	A-6	0	0-3	85-100	80-100	75-90	60-90	29-38	13-19
	49-80	Loam	CL, SC	A-4, A-6	0-1	0-3	85-100	75-98	65-95	40-80	22-35	7-17
171B: Catlin-----	0-11	Silt loam	CL, ML	A-7-6, A-6	0	0	100	100	97-100	95-100	32-45	11-18
	11-16	Silty clay loam	CH, CL	A-7-5, A-7-6	0	0	100	100	97-100	95-100	40-52	19-25
	16-41	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	95-100	90-100	38-48	19-25
	41-45	Clay loam	CL	A-7-6, A-6	0	0	90-98	85-98	76-95	54-83	37-46	19-25
	45-80	Loam	CL, SC	A-4, A-6	0-1	0-3	85-100	75-98	65-95	40-80	22-35	7-17
198A: Elburn-----	0-16	Silt loam	CL, ML	A-6, A-7-5, A-7-6	0	0	100	100	97-100	95-100	38-47	14-18
	16-49	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	97-100	95-100	36-48	17-25
	49-58	Stratified sandy loam to silt loam	CL	A-4, A-6	0	0	95-100	95-100	85-100	55-80	25-32	9-13
	58-62	Stratified sandy loam to loamy sand	SC-SM, SM, SC	A-2-4, A-4	0	0	95-100	90-100	60-100	20-50	16-27	2-10

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
199A: Plano-----	0-14	Silt loam	CL, ML	A-7-6, A-6	0	0	100	100	95-100	90-100	33-45	11-18
	14-49	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	31-47	13-25
	49-60	Loam, clay loam, sandy loam, sandy clay loam	CL, SC	A-4, A-6, A- 2-6, A-2-4, A-2-7, A-7-6	0	0-1	90-100	85-95	60-90	30-75	25-42	9-22
	60-80	Stratified loamy sand to silt loam	SC, SM, CL, ML, SC-SM, CL-ML	A-2-4, A-4, A-1-b, A-6, A-2-6	0	0-3	90-100	80-95	35-90	15-65	16-32	2-13
199B: Plano-----	0-15	Silt loam	CL, ML	A-7-6, A-6	0	0	100	100	95-100	90-100	33-45	11-18
	15-45	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	31-47	13-25
	45-55	Loam, clay loam, sandy loam, sandy clay loam	CL, SC	A-7-6, A-6, A-2-6, A-2- 7, A-4, A-2- 4	0	0-1	90-100	85-95	60-90	30-75	25-42	9-22
	55-80	Stratified loamy sand to silt loam	SC, SM, CL, SC-SM, CL- ML, ML	A-2-4, A-4, A-1-b, A-2- 6, A-6	0	0-3	90-100	80-95	35-90	15-65	16-32	2-13
199C2: Plano-----	0-8	Silt loam	CL, ML	A-7-6, A-6, A-7-5	0	0	100	100	95-100	90-100	31-45	11-18
	8-41	Silty clay loam, silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-40	10-25
	41-53	Loam, clay loam, sandy loam, sandy clay loam	CL, ML, SC, SM	A-4, A-6, A- 2-6, A-2-4	0	0-1	90-100	85-95	60-90	30-75	25-37	7-17
	53-80	Stratified loamy sand to silt loam	SC, SM, CL, ML, SC-SM, CL-ML	A-2-4, A-4, A-1-b	0	0-3	90-100	80-95	35-90	15-65	20-30	2-10

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
206A: Thorp-----	0-14	Silt loam	CL	A-4, A-6	0	0	100	95-100	90-100	85-100	20-40	8-20
	14-19	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	85-100	15-35	7-15
	19-43	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	95-100	90-100	85-100	35-50	15-30
	43-50	Loam, clay loam, sandy clay loam	SC, CL	A-6, A-4	0	0	90-100	85-100	70-95	40-80	20-40	10-20
	50-65	Stratified loamy sand to loam	SC-SM, SM	A-4, A-2-4, A-1-b	0	0	85-100	80-95	35-80	20-50	15-25	2-7
233B: Birkbeck-----	0-4	Silt loam	CL, ML	A-6	0	0	100	100	97-100	95-100	29-37	11-18
	4-9	Silt loam	CL	A-6, A-4	0	0	100	100	97-100	95-100	24-37	7-18
	9-54	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	97-100	95-100	37-46	16-25
	54-60	Loam	CL, SC	A-6, A-4	0	0-1	85-100	85-100	70-95	45-75	25-33	8-14
	60-68	Loam	CL, SC, SC- SM, CL-ML	A-4, A-6	0-1	0-3	85-100	85-100	70-95	45-75	22-33	4-14
234A: Sunbury-----	0-8	Silt loam	CL, ML	A-7-6, A-6	0	0	100	100	95-100	95-99	31-43	11-17
	8-15	Silt loam, silty clay loam	CL	A-6	0	0	100	100	95-100	95-99	28-41	12-21
	15-36	Silty clay loam, silty clay	CL, CH	A-7-6	0	0	100	100	95-100	95-99	45-54	25-31
	36-43	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	95-99	85-98	35-46	17-25
	43-47	Silt loam, loam	CL	A-6	0	0	100	90-100	75-98	65-90	29-38	13-19
	47-80	Loam	CL, SC	A-4, A-6	0-1	0-3	85-100	75-98	65-95	40-80	22-35	7-17
236A: Sabina-----	0-7	Silt loam	CL, ML	A-4, A-6, A- 7-6	0	0	100	100	95-100	95-99	27-44	9-18
	7-18	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	95-99	25-39	9-19
	18-30	Silty clay loam	CL, CH	A-7-6	0	0	100	100	95-100	95-99	45-52	25-29
	30-45	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	97-100	95-100	85-98	35-46	17-25
	45-51	Loam	CL, SC	A-6	0	0	90-100	80-100	70-95	45-75	29-38	13-19
	51-80	Loam	CL, SC	A-4, A-6	0-1	0-3	85-100	75-98	65-95	40-80	22-35	7-17

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
244A:												
Hartsburg-----	0-17	Silty clay loam	MH, ML, CL	A-7-5, A-7-6	0	0	100	100	95-100	95-100	46-57	18-24
	17-34	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	95-100	95-100	36-49	17-25
	34-60	Silt loam	CL	A-6, A-4	0	0	95-100	90-100	85-100	80-98	25-38	9-19
257A:												
Clarksdale-----	0-7	Silt loam	CL	A-6, A-7-6, A-7-5	0	0	100	100	95-100	85-100	30-44	11-18
	7-17	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	85-100	25-40	9-19
	17-24	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	97-100	95-100	37-46	19-25
	24-52	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	97-100	95-100	45-56	25-33
	52-60	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	97-100	95-100	37-46	19-25
	60-80	Silt loam	CL	A-4, A-6	0	0	100	100	96-100	93-100	25-37	9-19
279B:												
Rozetta-----	0-7	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	95-100	24-35	8-15
	7-11	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	95-100	20-30	5-15
	11-55	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	95-100	35-50	15-30
	55-60	Silt loam, silty clay loam	CL	A-4, A-6	0	0	100	100	95-100	85-100	25-40	7-20
291B:												
Xenia-----	0-4	Silt loam	CL, ML, CL-ML	A-4, A-7-6, A-6	0	0	100	97-100	95-100	85-100	27-42	9-18
	4-16	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	100	97-100	95-100	85-100	25-38	9-19
	16-37	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-100	85-100	37-46	19-25
	37-57	Clay loam, loam	CL	A-7-6, A-6	0	0	90-100	85-99	75-95	55-85	34-46	16-25
	57-80	Loam	CL, SC	A-4, A-6	0-1	0-3	85-100	75-98	65-95	40-80	22-35	7-17
322C2:												
Russell-----	0-7	Silt loam	CL	A-6	0	0	100	97-100	95-100	85-100	30-41	13-19
	7-27	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-100	85-100	37-46	19-25
	27-56	Clay loam	CL	A-7-6, A-6	0	0	90-100	85-100	75-95	55-85	37-44	19-23
	56-80	Loam	CL, SC	A-4, A-6	0-1	0-3	85-100	75-98	65-95	40-80	22-35	7-17
330A:												
Peotone-----	0-6	Silty clay loam	CH, MH	A-7-5, A-7-6	0	0	100	100	97-100	95-100	54-65	25-28
	6-28	Silty clay loam	CL, MH, CH	A-7-6, A-7-5	0	0	100	100	97-100	95-100	49-59	25-29
	28-44	Silty clay loam, silty clay	CL, MH, CH	A-7-6, A-7-5	0	0	100	97-100	95-100	85-100	48-58	25-29
	44-60	Silty clay loam	CL, CH	A-7-6, A-6	0	0	100	97-100	95-100	85-100	37-53	19-29

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
348B:												
Wingate-----	0-9	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	100	97-100	95-100	85-100	24-37	5-15
	9-12	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	100	97-100	95-100	85-100	24-37	5-15
	12-27	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-100	85-100	37-46	17-24
	27-52	Clay loam, loam	CL	A-6	0	0	90-100	85-99	75-95	55-85	33-39	12-18
	52-60	Loam	CL-ML, CL, SC-SM	A-4	0-1	0-3	90-100	85-99	70-95	45-75	22-28	4-10
481A:												
Raub-----	0-18	Silt loam	CL-ML, CL, ML	A-4, A-6	0	0	100	97-100	95-100	85-100	24-37	4-14
	18-32	Silty clay loam	CL	A-6, A-7-6	0	0	100	97-100	95-100	85-100	37-46	17-24
	32-50	Clay loam, loam	CL	A-6	0	0	90-100	85-100	75-95	55-85	33-39	12-18
	50-60	Loam, clay loam	CL-ML, CL, SC, SC-SM	A-4, A-6	0-1	0-3	85-100	80-95	70-90	45-70	22-33	4-14
533.												
Urban land												
618C2:												
Senachwine-----	0-6	Silt loam	CL, ML	A-6	0	0	95-100	95-100	90-98	77-90	30-41	13-19
	6-12	Silty clay loam, clay loam	CL	A-7-6, A-6	0	0	95-100	95-100	90-99	75-90	37-46	19-25
	12-27	Clay loam	CL	A-7-6, A-6	0	0	90-100	85-99	75-95	55-85	37-46	19-25
	27-80	Loam	CL, SC	A-4, A-6	0-1	0-3	85-100	75-98	65-95	40-80	22-35	7-17
618D2:												
Senachwine-----	0-6	Silt loam	CL	A-6	0	0	95-100	95-100	90-100	80-90	30-41	13-19
	6-15	Silty clay loam, clay loam	CL	A-6, A-7-6	0	0	95-100	95-100	90-99	75-90	37-46	19-25
	15-28	Clay loam	CL	A-6, A-7-6	0	0	90-100	85-99	75-95	55-85	37-46	19-25
	28-34	Loam, clay loam	CL	A-6	0	0-2	90-100	85-99	72-95	50-75	29-38	13-19
	34-80	Loam	CL, SC	A-4, A-6	0-1	0-3	85-100	75-98	65-95	40-80	22-35	7-17
618D3:												
Senachwine-----	0-3	Clay loam	CL, ML	A-6	0	0	100	90-100	83-95	59-85	30-40	15-20
	3-25	Clay loam	CL, ML	A-6	0	0	90-100	85-99	75-95	55-85	33-39	12-18
	25-60	Loam	CL-ML, CL, ML, SC-SM	A-4	0-1	0-3	90-100	85-99	73-95	45-75	22-28	4-10

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
618F: Senachwine-----	0-11	Silt loam	CL-ML, CL, ML	A-6, A-4	0	0	95-100	90-100	75-100	55-90	22-36	6-13
	11-17	Silty clay loam, clay loam	CL, ML	A-7-6, A-6	0	0	90-100	85-99	75-95	55-90	37-47	19-25
	17-32	Clay loam	CL	A-7-6, A-6	0	0	90-100	85-99	75-95	55-85	37-46	19-25
	32-40	Loam, clay loam	CL, SC	A-6	0	0-2	90-100	85-99	70-90	45-75	29-38	13-19
	40-80	Loam	CL, SC	A-4, A-6	0-1	0-3	85-100	75-98	65-95	40-80	22-35	7-17
618G: Senachwine-----	0-5	Silt loam	CL-ML, CL	A-6, A-4	0	0	95-100	90-100	75-100	55-90	22-36	6-13
	5-11	Silt loam	CL-ML, CL	A-6, A-4	0	0	95-100	90-100	80-100	55-90	21-32	6-13
	11-30	Clay loam, silty clay loam	CL	A-7-6, A-6	0	0	90-100	85-99	75-95	55-85	37-46	19-25
	30-38	Clay loam, loam	CL, ML, SC	A-6	0	0-2	90-100	85-99	70-90	45-75	29-40	13-21
	38-80	Loam	CL, SC	A-4, A-6	0-1	0-3	85-100	75-98	65-95	40-80	22-35	7-17
622B2: Wyanet-----	0-8	Silt loam	CL, ML	A-6, A-7-6	0	0	95-100	90-100	80-100	65-85	32-44	13-18
	8-24	Clay loam, silty clay loam	CL	A-6, A-7-6	0	0	90-100	85-100	75-95	50-85	38-48	19-25
	24-32	Loam	CL, SC	A-6	0	0	90-100	85-100	70-95	42-75	29-38	13-19
	32-60	Loam	CL, SC	A-4, A-6	0-1	0-3	85-100	75-98	65-95	40-80	22-35	7-17
622C2: Wyanet-----	0-8	Silt loam	CL, ML	A-7-6, A-6	0	0	95-100	90-100	80-100	65-85	32-44	13-18
	8-26	Clay loam, silty clay loam	CL	A-6, A-7-6	0	0	90-100	85-100	76-95	50-85	38-48	19-25
	26-34	Loam	CL, SC	A-6	0	0	90-100	85-100	70-95	42-75	29-38	13-19
	34-80	Loam	CL, SC	A-4, A-6	0-1	0-3	85-100	75-98	65-95	40-80	22-35	7-17
675B: Greenbush-----	0-6	Silt loam	CL, ML	A-6, A-7-6	0	0	100	100	100	95-100	31-41	11-17
	6-17	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	26-39	9-19
	17-75	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	100	95-100	37-47	18-25
	75-80	Silt loam	CL	A-6	0	0	100	100	100	95-100	27-38	12-19

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
679B: Blackberry-----	0-16	Silt loam	ML, CL	A-6, A-7-6, A-7-5	0	0	100	100	95-100	90-100	33-47	10-18
	16-47	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	35-47	17-25
	47-62	Stratified loam to silt loam	CL	A-4, A-6	0	0	90-100	85-100	70-99	50-85	25-36	9-17
	62-70	Stratified silt loam to loam to sandy loam	CL-ML, CL, ML, SC-SM, SM, SC	A-4, A-6	0	0	95-100	80-100	60-99	40-80	16-32	2-13
684B: Broadwell-----	0-15	Silt loam	CL, ML	A-6, A-7-6	0	0	100	100	95-100	90-100	35-45	13-18
	15-50	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	30-45	10-25
	50-55	Loamy fine sand, clay loam, fine sandy loam, loam	SC, SC-SM, CL-ML, CL	A-4, A-2-4	0	0	100	95-100	80-95	25-75	20-30	5-10
	55-80	Loamy sand, fine sand, sand	SM	A-2-4, A-4	0	0	100	100	65-95	15-50	8-20	NP-4
687C2: Penfield-----	0-7	Loam	CL, ML	A-6, A-4, A- 5, A-7-5, A- 7-6	0	0	97-100	95-100	80-95	50-75	25-44	9-18
	7-13	Loam	CL, ML	A-6	0	0	97-100	95-100	80-95	50-80	30-40	13-19
	13-37	Clay loam	CL	A-7-6, A-6	0	0	97-100	95-100	80-95	55-85	37-46	19-25
	37-42	Sandy loam	SC, CL, SM	A-6, A-4	0	0	95-100	90-100	55-95	35-60	22-32	7-13
	42-60	Stratified sandy loam to coarse sand	SM, SW-SM, SW-SC, SC, SC-SM	A-2-4, A-1-b, A-4	0	0	95-100	80-100	25-85	10-50	16-27	2-10
705B: Buckhart-----	0-15	Silt loam	CL, ML	A-6, A-7-6	0	0	100	100	100	95-100	35-44	13-18
	15-67	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	35-47	17-25
	67-80	Silt loam	CL	A-6	0	0	100	100	100	95-100	27-38	12-19

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
712A:												
Spaulding-----	0-22	Silty clay loam	ML, MH, CL	A-7-6, A-7-5	0	0	100	100	95-100	95-100	45-57	18-24
	22-38	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	95-100	95-100	38-49	19-25
	38-44	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	95-100	95-100	33-47	15-25
	44-80	Silt loam	CL	A-6	0	0	100	100	95-100	95-100	29-38	13-19
722A:												
Drummer-----	0-14	Silty clay loam	MH, ML	A-7-6, A-7-5	0	0	100	97-100	95-100	85-100	46-60	18-24
	14-41	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-100	85-100	38-49	19-25
	41-47	Loam	CL	A-6	0	0	95-100	90-100	75-95	50-80	29-38	13-19
	47-60	Stratified loam to sandy loam	SC, CL, CL- ML, SC-SM	A-2-6, A-6, A-4, A-2-4	0	0	95-100	80-100	55-95	30-65	20-32	6-13
Milford-----	0-14	Silty clay loam	MH	A-7-6, A-7-5	0	0	100	97-100	95-100	85-95	54-63	25-28
	14-25	Silty clay, silty clay loam	MH, CH, CL, ML	A-7-5, A-7-6	0	0	100	95-100	90-100	85-95	47-59	25-33
	25-45	Silty clay loam	CL	A-7-6, A-6	0	0	95-100	85-97	80-95	70-95	37-46	19-25
	45-80	Stratified silt loam	CL, CL-ML	A-6	0	0	90-100	80-100	75-95	60-85	29-38	13-19
737B:												
Tama, very deep to sand-----	0-16	Silt loam	ML, CL	A-6, A-7-6	0	0	100	100	95-100	90-100	35-45	13-18
	16-70	Silty clay loam, silt loam	CL	A-7-5, A-6, A-7-6	0	0	100	100	95-100	90-100	30-45	10-25
	70-80	Loamy sand, fine sand, loamy fine sand	SC-SM, SM, SP, SP-SM	A-2-4, A-3	0	0	100	90-100	60-95	2-35	0-20	NP-5
749B:												
Buckhart, till substratum----	0-13	Silt loam	CL, ML	A-6, A-7-6, A-7-5	0	0	100	100	100	95-100	35-44	13-18
	13-59	Silty clay loam, silt loam	CL	A-7-5, A-7-6	0	0	100	100	100	95-100	40-50	15-25
	59-69	Silt loam	CL	A-6	0	0	100	100	100	95-100	27-38	12-19
	69-80	Loam	CL, CL-ML	A-4, A-6	0-1	0-3	90-100	85-95	70-90	50-70	22-33	4-14

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
802B: Orthents, loamy	0-10	Clay loam	CL	A-6, A-7-6	0	0-5	95-100	90-100	80-95	50-85	38-49	19-25
	10-60	Clay loam, silty clay loam, loam	CL	A-6, A-7-6	0-1	0-5	95-100	85-100	75-95	50-90	32-43	15-21
802D: Orthents, loamy	0-10	Clay loam	CL	A-6, A-7-6	0	0-5	95-100	90-100	85-100	50-80	38-49	19-25
	10-60	Clay loam, silty clay loam, loam	CL	A-6, A-7-6	0-1	0-5	95-100	85-100	85-100	50-85	32-42	15-21
865. Pits, gravel												
1083A: Wabash, undrained-----	0-10	Silty clay	CH, MH	A-7-6, A-7-5	0	0	100	100	94-100	80-100	57-77	28-39
	10-33	Silty clay	CH, MH	A-7-6, A-7-5	0	0	100	100	95-100	85-100	52-74	29-41
	33-60	Silty clay	CH, MH	A-7-6, A-7-5	0	0	100	100	95-100	85-100	50-69	29-42
1107A: Sawmill, undrained-----	0-29	Silty clay loam	CL, ML, MH	A-7-5, A-7-6	0	0	100	97-100	90-100	85-100	46-60	18-24
	29-38	Silty clay loam	CL	A-7-6	0	0	100	97-100	90-100	80-98	40-50	19-25
	38-60	Silty clay loam, clay loam	CL	A-7-6, A-6	0	0	100	97-100	90-100	80-95	36-50	17-25
3073A: Ross-----	0-13	Silt loam	ML, CL	A-4, A-6, A- 7-6	0	0	90-100	90-100	80-100	55-80	29-45	9-18
	13-43	Loam, silt loam	CL	A-6	0	0	90-100	85-100	75-100	50-85	29-43	12-18
	43-60	Stratified sandy loam to silt loam	SC-SM, SM, SC, CL-ML, CL, ML	A-2-4, A-4, A-2-6, A-6	0	0-5	85-100	75-100	65-100	25-70	17-33	2-13
3077A: Huntsville-----	0-43	Silt loam	CL, ML	A-6, A-7-5, A-7-6	0	0	100	95-100	90-100	85-100	31-45	11-18
	43-60	Silt loam, loam	CL	A-6	0	0	100	95-100	90-100	85-100	27-38	12-19
3083A: Wabash-----	0-10	Silty clay	CH, MH	A-7-5, A-7-6	0	0	100	100	94-100	80-100	57-77	28-39
	10-33	Silty clay	CH, MH	A-7-5, A-7-6	0	0	100	100	95-100	85-100	52-74	29-41
	33-60	Silty clay	CH, MH	A-7-6, A-7-5	0	0	100	100	95-100	85-100	50-69	29-42

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
3107A:												
Sawmill-----	0-10	Silty clay loam	CL, ML, MH	A-7-6, A-7-5	0	0	100	100	95-100	85-100	46-60	18-24
	10-32	Silty clay loam	CL, ML, MH	A-7-6, A-7-5	0	0	100	100	95-100	85-100	46-60	18-24
	32-58	Silty clay loam	CL	A-7-5, A-7-6	0	0	100	100	95-100	80-95	40-52	19-25
	58-65	Silty clay loam, clay loam	CL	A-7-5, A-7-6, A-6	0	0	100	97-100	90-100	80-95	36-52	17-25
3284A:												
Tice-----	0-21	Silty clay loam	ML, CL, CH	A-7-5, A-7-6	0	0	100	100	95-100	85-100	41-53	19-25
	21-66	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	85-100	80-95	33-47	15-25
	66-80	Silt loam	CL	A-6	0	0	100	100	80-100	65-85	29-38	13-19
3333A:												
Wakeland-----	0-9	Silt loam	CL-ML, CL, ML	A-4	0	0	100	100	92-100	76-100	19-27	2-10
	9-60	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	92-100	76-100	19-27	2-10
3352A:												
Palms-----	0-8	Silty clay loam	OL, ML, MH, OH	A-7-5, A-7-6	0	0	100	100	95-100	85-100	46-66	18-24
	8-46	Highly decomposed plant material, muck	PT		0	0	100	100	95-100	85-95	---	---
	46-60	Stratified fine sandy loam to loam, fine sandy loam, loam, sandy loam	SM, ML, SC- SM, CL-ML, SC, CL	A-2-6, A-6, A-4, A-2-4	0	0	95-100	80-100	55-95	30-65	22-41	6-13
3451A:												
Lawson-----	0-8	Silt loam	CL, ML	A-7-6, A-6, A-7-5	0	0	100	97-100	95-100	85-100	35-50	11-18
	8-35	Silt loam, silty clay loam	CL, ML	A-7-6, A-6	0	0	100	97-100	95-100	85-100	33-49	11-20
	35-80	Stratified silt loam to loam, silty clay loam	CL	A-6	0	0	100	95-100	85-100	65-90	30-40	13-21

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
7134B: Camden, rarely flooded-----	0-9	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	95-100	27-42	9-18
	9-14	Silt loam	CL	A-6	0	0	100	100	95-100	95-100	25-38	9-19
	14-22	Silty clay loam, silt loam	CL	A-6	0	0	100	100	97-100	95-100	31-38	15-19
	22-35	Silty clay loam	CL	A-6, A-7-6	0	0	98-100	95-100	90-100	80-100	37-46	19-25
	35-52	Clay loam, loam, sandy loam	CL, SC	A-6	0	0	95-100	85-100	70-100	40-84	27-40	12-21
	52-80	Stratified sandy loam to loam to sandy clay loam	SC, CL-ML, CL, SC-SM, SM, ML	A-4, A-6, A- 2-4, A-2-6	0	0	95-100	80-100	60-99	30-60	20-33	6-15
7136A: Brooklyn, rarely flooded-----	0-9	Silt loam	ML, CL	A-4, A-6	0	0	100	100	95-100	85-100	28-40	9-15
	9-14	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	85-100	24-34	9-15
	14-40	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	95-100	90-100	45-56	25-33
	40-62	Clay loam, gravelly clay loam	CL, SC	A-7-6, A-6	0	0-2	75-95	70-90	55-90	40-80	37-50	19-29
	62-80	Stratified sandy loam to loam	SC-SM, SC, CL-ML, CL	A-2-6, A-6, A-4, A-2-4	0	0	85-100	80-100	53-100	31-84	20-37	6-19
7198A: Elburn-----	0-16	Silt loam	CL, ML	A-6, A-7-6, A-7-5	0	0	100	100	97-100	95-100	38-47	14-18
	16-49	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	97-100	95-100	36-48	17-25
	49-58	Stratified sandy loam to silt loam	CL	A-4, A-6	0	0	95-100	95-100	85-100	55-80	25-32	9-13
	58-62	Stratified sandy loam to loamy sand	SC, SC-SM, SM	A-2-4, A-4	0	0	95-100	90-100	60-100	20-50	16-27	2-10

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
7199B: Plano-----	0-9	Silt loam	CL, ML	A-6, A-7-6	0	0	100	100	97-100	95-100	35-45	13-18
	9-46	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	97-100	95-100	38-48	19-25
	46-53	Loam, clay loam, sandy loam, sandy clay loam	CL, SC	A-4, A-6, A- 2-6, A-2-4	0	0-1	90-100	85-95	60-90	30-75	25-42	9-22
	53-80	Stratified loamy sand to silt loam	SC, SM, CL, ML, SC-SM, CL-ML	A-2-4, A-4, A-1-b, A-6	0	0-3	90-100	80-95	35-90	15-65	16-32	2-13
7802B: Orthents, loamy, rarely flooded	0-10	Clay loam	CL, ML	A-6	0	0-5	95-100	90-100	85-95	50-80	30-40	10-15
	10-60	Clay loam, silty clay loam, loam	CL, ML, SC	A-6	0-1	0-5	95-100	85-100	85-95	40-85	30-40	10-20
7865. Pits, gravel												
8070A: Beaucoup-----	0-15	Silty clay loam	ML, MH, CL	A-7-6, A-7-5	0	0	100	100	95-100	85-100	47-57	18-24
	15-48	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	85-100	37-49	19-25
	48-60	Stratified silt loam to silty clay loam	CL	A-6, A-7-6	0	0	100	100	90-100	65-95	24-41	9-21
	60-80	Stratified silt loam to silty clay loam	CL, CL-ML	A-4, A-6, A- 7-6	0	0	100	100	90-100	60-95	20-41	6-21

Table 19.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
43A: Ipava-----	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
	0-10	2-7	66-83	15-27	1.25-1.45	0.6-2	0.22-0.24	0.0-2.9	3.5-5.0	.28	.28	5	6	48
	10-18	2-7	58-71	27-35	1.20-1.40	0.6-2	0.18-0.21	3.0-5.9	1.5-3.5	.37	.37			
	18-31	2-7	48-63	35-45	1.30-1.50	0.2-0.6	0.15-0.18	6.0-8.9	0.5-1.5	.37	.37			
	31-50	2-7	58-71	27-35	1.35-1.55	0.6-2	0.18-0.21	3.0-5.9	0.1-0.5	.37	.37			
	50-60	2-7	66-83	15-27	1.40-1.60	0.6-2	0.19-0.26	0.0-2.9	0.0-0.5	.49	.49			
45A: Denny-----	0-8	0-7	66-80	20-27	1.25-1.45	0.6-2	0.22-0.24	0.0-2.9	2.0-3.0	.37	.37	5	6	48
	8-21	0-7	71-85	15-22	1.25-1.45	0.2-0.6	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	21-46	0-7	48-65	35-45	1.20-1.40	0.06-0.2	0.11-0.22	6.0-8.9	0.0-1.0	.37	.37			
	46-80	0-7	58-75	25-35	1.40-1.60	0.2-0.6	0.20-0.22	3.0-5.9	0.0-0.5	.43	.43			
56B: Dana-----	0-11	2-15	58-80	18-27	1.25-1.50	0.6-2	0.18-0.24	0.0-2.9	3.0-5.0	.28	.28	5	6	48
	11-32	2-15	50-70	27-35	1.25-1.55	0.6-2	0.13-0.19	3.0-5.9	0.5-1.5	.37	.37			
	32-58	20-40	25-53	27-35	1.40-1.70	0.6-2	0.10-0.16	3.0-5.9	0.2-0.8	.32	.32			
	58-80	26-50	35-50	12-25	1.65-1.85	0.2-0.6	0.08-0.14	0.0-2.9	0.1-0.3	.37	.43			
56B2: Dana-----	0-7	2-15	58-78	20-27	1.40-1.60	0.6-2	0.16-0.21	0.0-2.9	1.5-3.5	.37	.37	5	6	48
	7-34	2-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.5-1.5	.37	.37			
	34-53	20-40	25-53	27-35	1.50-1.70	0.6-2	0.12-0.17	3.0-5.9	0.1-0.5	.32	.32			
	53-80	26-50	35-50	12-25	1.65-1.85	0.2-0.6	0.08-0.14	0.0-2.9	0.1-0.3	.37	.43			
56C2: Dana-----	0-8	3-15	55-67	27-30	1.35-1.55	0.6-2	0.16-0.19	3.0-5.9	1.5-3.5	.32	.37	5	6	48
	8-32	3-15	50-70	27-35	1.35-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.5	.37	.37			
	32-47	20-40	25-53	27-35	1.50-1.60	0.6-2	0.12-0.16	3.0-5.9	0.1-0.5	.32	.37			
	47-80	26-50	35-50	12-25	1.65-1.85	0.2-0.6	0.08-0.14	0.0-2.9	0.1-0.3	.37	.43			
67A: Harpster-----	0-18	3-15	50-70	27-35	1.20-1.40	0.6-2	0.19-0.22	3.0-5.9	4.5-6.5	.24	.24	5	4L	86
	18-41	3-15	50-70	27-35	1.35-1.55	0.6-2	0.18-0.21	3.0-5.9	1.5-3.0	.37	.37			
	41-56	3-27	58-82	15-27	1.40-1.60	0.6-2	0.19-0.26	0.0-2.9	0.5-1.0	.49	.49			
	56-60	30-50	28-55	15-27	1.45-1.65	0.6-2	0.10-0.20	0.0-2.9	0.1-0.5	.37	.37			
68A: Sable-----	0-23	1-7	58-72	27-35	1.15-1.35	0.6-2	0.17-0.22	3.0-5.9	4.5-6.0	.24	.24	5	6	48
	23-38	1-7	58-72	27-35	1.35-1.45	0.6-2	0.13-0.21	3.0-5.9	0.5-1.5	.37	.37			
	38-47	1-7	66-75	24-27	1.30-1.50	0.6-2	0.13-0.23	0.0-2.9	0.1-0.5	.49	.49			
	47-60	1-7	66-79	20-27	1.40-1.60	0.6-2	0.19-0.26	0.0-2.9	0.0-0.5	.55	.55			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
86B:														
Osc-----	0-14	0-7	67-80	20-26	1.25-1.30	0.6-2	0.22-0.24	0.0-2.9	3.0-4.0	.28	.28	5	6	48
	14-55	0-7	58-76	24-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.37	.37			
	55-60	0-7	63-80	20-30	1.35-1.40	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.49	.49			
88C:														
Sparta-----	0-12	75-87	3-21	4-10	1.60-1.80	6-20	0.05-0.11	0.0-2.9	2.0-4.0	.02	.02	5	2	134
	12-31	75-89	0-24	1-13	1.60-1.80	6-20	0.05-0.11	0.0-2.9	0.2-0.5	.05	.05			
	31-80	75-98	0-25	0-13	1.60-1.85	6-20	0.02-0.06	0.0-2.9	0.1-0.2	.02	.02			
119C2:														
Elco-----	0-8	0-7	66-80	20-27	1.20-1.35	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	5	6	48
	8-31	0-7	58-77	23-35	1.25-1.45	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.37	.37			
	31-60	15-35	20-60	25-45	1.45-1.70	0.06-0.6	0.14-0.20	6.0-8.9	0.0-0.2	.28	.28			
132A:														
Starks-----	0-8	2-15	58-82	15-27	1.25-1.50	0.6-2	0.19-0.25	0.0-2.9	1.0-2.5	.43	.43	5	5	56
	8-13	2-15	58-82	15-27	1.35-1.55	0.2-0.6	0.16-0.22	0.0-2.9	0.3-0.8	.49	.49			
	13-36	2-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.2-0.5	.37	.37			
	36-44	45-65	15-35	10-30	1.45-1.65	0.6-2	0.13-0.17	0.0-5.9	0.2-0.5	.24	.24			
	44-60	45-70	10-35	5-20	1.50-1.70	0.6-2	0.08-0.15	0.0-2.9	0.1-0.3	.28	.28			
134B:														
Camden-----	0-9	2-7	66-83	15-27	1.35-1.55	0.6-2	0.22-0.24	0.0-2.9	1.0-2.5	.43	.43	5	5	56
	9-14	2-7	66-83	15-27	1.40-1.60	0.6-2	0.17-0.20	0.0-2.9	0.3-0.8	.55	.55			
	14-22	2-7	66-76	22-27	1.30-1.50	0.6-2	0.18-0.23	0.0-2.9	0.1-0.5	.43	.43			
	22-35	3-15	50-70	27-35	1.35-1.55	0.6-2	0.16-0.20	3.0-5.9	0.1-0.5	.37	.37			
	35-52	25-54	28-50	18-30	1.45-1.65	0.6-2	0.11-0.18	0.0-2.9	0.1-0.5	.32	.32			
	52-80	45-65	25-45	10-22	1.50-1.70	0.6-6	0.08-0.15	0.0-2.9	0.1-0.3	.28	.28			
136A:														
Brooklyn-----	0-9	2-14	65-82	15-22	1.30-1.50	0.6-2	0.20-0.26	0.0-2.9	1.5-3.5	.37	.37	3	5	56
	9-14	2-15	71-82	14-22	1.35-1.55	0.2-0.6	0.20-0.26	0.0-2.9	0.2-0.8	.64	.64			
	14-40	0-10	47-63	35-45	1.30-1.50	0.06-0.2	0.11-0.17	6.0-8.9	0.1-0.5	.37	.37			
	40-62	20-44	23-52	27-40	1.50-1.70	0.2-0.6	0.09-0.15	3.0-5.9	0.1-0.5	.28	.32			
	62-73	29-61	28-44	10-27	1.55-1.75	0.6-2	0.11-0.15	0.0-2.9	0.1-0.3	.37	.43			
	73-80	26-50	35-50	12-25	1.65-1.85	0.2-0.6	0.08-0.14	0.0-2.9	0.1-0.3	.37	.43			
138A:														
Shiloh-----	0-19	1-17	47-64	35-40	1.25-1.45	0.2-0.6	0.12-0.18	6.0-8.9	3.0-5.0	.24	.24	5	4	86
	19-48	1-17	40-64	35-45	1.30-1.50	0.2-0.6	0.11-0.17	6.0-8.9	1.0-3.5	.32	.32			
	48-68	1-15	43-66	33-45	1.35-1.55	0.06-0.2	0.11-0.18	6.0-8.9	0.2-1.0	.37	.37			
	68-80	10-33	30-53	35-50	1.40-1.60	0.06-0.2	0.10-0.16	6.0-8.9	0.2-1.0	.28	.28			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
148B:														
Proctor-----	0-13	1-9	64-71	18-27	1.10-1.30	0.6-2	0.15-0.21	0.0-2.9	2.0-4.0	.28	.28	5	6	48
	13-25	1-9	56-74	25-35	1.20-1.45	0.6-2	0.13-0.19	3.0-5.9	0.5-2.0	.37	.37			
	25-45	20-55	23-50	18-32	1.30-1.55	0.6-2	0.13-0.16	0.0-2.9	0.2-0.8	.37	.43			
	45-60	30-50	35-55	5-20	1.40-1.70	0.6-6	0.07-0.19	0.0-2.9	0.1-0.5	.37	.37			
148C2:														
Proctor-----	0-13	3-15	58-77	20-27	1.40-1.60	0.6-2	0.17-0.23	0.0-2.9	1.5-3.5	.37	.37	5	6	48
	13-36	3-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.5-1.5	.37	.37			
	36-46	20-35	35-60	20-30	1.45-1.65	0.6-2	0.09-0.15	3.0-5.9	0.1-0.5	.32	.37			
	46-60	30-50	45-65	5-15	1.55-1.75	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55			
152A:														
Drummer-----	0-14	3-15	50-70	27-35	1.20-1.40	0.6-2	0.12-0.18	3.0-5.9	4.5-7.0	.24	.24	5	6	48
	14-41	3-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.8-2.0	.37	.37			
	41-47	25-45	28-50	20-27	1.45-1.65	0.6-2	0.11-0.17	0.0-2.9	0.2-0.5	.32	.32			
	47-60	45-65	25-45	10-20	1.55-1.75	0.6-2	0.11-0.17	0.0-2.9	0.1-0.3	.24	.24			
153A:														
Pella-----	0-15	3-15	50-70	27-35	1.20-1.40	0.6-2	0.15-0.21	3.0-5.9	4.5-7.0	.24	.24	5	6	48
	15-21	3-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.8-2.0	.37	.37			
	21-34	3-27	58-82	15-27	1.40-1.60	0.6-2	0.16-0.21	0.0-2.9	0.2-0.5	.49	.49			
	34-80	30-50	35-55	5-20	1.40-1.70	0.6-6	0.07-0.19	0.0-2.9	0.1-0.5	.37	.43			
154A:														
Flanagan-----	0-18	2-7	66-78	20-27	1.25-1.45	0.6-2	0.16-0.22	0.0-2.9	3.5-5.0	.28	.28	5	6	48
	18-38	2-7	53-63	35-40	1.30-1.50	0.2-0.6	0.11-0.17	6.0-8.9	0.5-1.8	.37	.37			
	38-45	3-15	50-72	25-35	1.30-1.50	0.6-2	0.13-0.19	3.0-5.9	0.1-0.5	.37	.37			
	45-49	15-30	45-65	20-27	1.40-1.60	0.6-2	0.13-0.19	0.0-2.9	0.1-0.5	.37	.37			
	49-80	26-50	35-50	12-25	1.65-1.85	0.2-0.6	0.08-0.14	0.0-2.9	0.1-0.3	.37	.43			
171B:														
Catlin-----	0-11	1-7	66-81	18-27	1.30-1.40	0.6-2	0.19-0.23	0.0-2.9	2.5-4.0	.37	.37	5	6	48
	11-16	1-7	58-72	27-35	1.25-1.40	0.6-2	0.17-0.20	3.0-5.9	1.5-3.5	.37	.37			
	16-41	2-8	58-70	27-35	1.35-1.45	0.6-2	0.14-0.20	3.0-5.9	0.5-1.5	.37	.37			
	41-45	20-40	25-53	27-35	1.45-1.55	0.6-2	0.12-0.16	3.0-5.9	0.1-0.5	.28	.28			
	45-80	26-50	35-50	12-25	1.65-1.85	0.2-0.6	0.08-0.14	0.0-2.9	0.1-0.3	.37	.43			
198A:														
Elburn-----	0-16	2-7	66-76	22-27	1.25-1.45	0.6-2	0.22-0.24	0.0-2.9	3.5-5.0	.28	.28	5	6	48
	16-49	2-7	58-73	25-35	1.35-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.5	.37	.37			
	49-58	30-55	30-55	15-20	1.45-1.65	0.6-2	0.14-0.17	0.0-2.9	0.1-0.5	.37	.37			
	58-62	60-80	10-25	5-15	1.50-1.70	2-6	0.06-0.10	0.0-2.9	0.1-0.5	.24	.24			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
199A: Plano-----	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
	0-14	0-10	63-82	18-27	1.10-1.30	0.6-2	0.22-0.24	0.0-2.9	3.0-4.0	.28	.28	5	6	48
	14-49	0-10	55-80	20-35	1.20-1.40	0.6-2	0.18-0.20	3.0-5.9	0.2-1.0	.37	.37			
	49-60	30-70	10-50	15-32	1.50-1.70	0.6-6	0.09-0.16	0.0-2.9	0.1-0.5	.28	.28			
	60-80	39-89	3-51	5-20	1.60-1.80	2-6	0.09-0.14	0.0-2.9	0.1-0.5	.20	.20			
199B: Plano-----	0-15	0-10	63-82	18-27	1.10-1.30	0.6-2	0.22-0.24	0.0-2.9	3.0-4.0	.28	.28	5	6	48
	15-45	0-10	55-80	20-35	1.35-1.55	0.6-2	0.16-0.20	3.0-5.9	0.2-1.0	.37	.37			
	45-55	30-70	10-50	15-32	1.50-1.70	0.6-6	0.09-0.16	0.0-2.9	0.1-0.5	.28	.28			
	55-80	39-89	3-51	5-20	1.60-1.80	2-6	0.09-0.14	0.0-2.9	0.1-0.5	.20	.20			
199C2: Plano-----	0-8	0-10	63-82	18-27	1.10-1.30	0.6-2	0.22-0.24	0.0-2.9	2.0-4.0	.37	.37	5	6	48
	8-41	0-10	55-80	20-35	1.20-1.40	0.6-2	0.18-0.20	3.0-5.9	0.2-1.0	.37	.37			
	41-53	30-70	10-50	15-32	1.50-1.70	0.6-6	0.09-0.16	0.0-2.9	0.1-0.5	.28	.28			
	53-80	39-89	3-51	5-20	1.60-1.80	2-6	0.09-0.14	0.0-2.9	0.1-0.5	.20	.20			
206A: Thorp-----	0-14	0-10	63-80	20-27	1.15-1.35	0.6-2	0.16-0.22	0.0-2.9	4.0-6.0	.28	.28	5	6	48
	14-19	0-10	65-82	18-25	1.30-1.50	0.2-0.6	0.16-0.22	0.0-2.9	0.2-1.0	.43	.43			
	19-43	0-10	55-78	22-35	1.35-1.55	0.06-0.2	0.13-0.19	3.0-5.9	0.2-1.0	.37	.37			
	43-50	20-55	15-62	18-30	1.40-1.60	0.6-2	0.10-0.20	0.0-5.9	0.2-0.5	.32	.32			
	50-65	48-80	1-47	5-20	1.50-1.70	0.6-6	0.05-0.13	0.0-2.9	0.0-0.1	.24	.24			
233B: Birkbeck-----	0-4	2-7	66-80	18-27	1.40-1.60	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	4-9	2-7	66-83	15-27	1.40-1.60	0.6-2	0.17-0.21	0.0-2.9	0.3-1.0	.49	.49			
	9-54	2-7	58-71	27-35	1.35-1.55	0.6-2	0.16-0.20	3.0-5.9	0.2-0.5	.37	.37			
	54-60	30-50	28-50	20-27	1.45-1.65	0.6-2	0.11-0.14	0.0-2.9	0.1-0.5	.32	.32			
	60-68	30-50	28-50	17-27	1.65-1.85	0.2-0.6	0.08-0.12	0.0-2.9	0.1-0.5	.37	.37			
234A: Sunbury-----	0-8	2-7	68-78	18-25	1.25-1.45	0.6-2	0.22-0.24	0.0-2.9	2.0-4.0	.37	.37	5	5	56
	8-15	2-7	63-78	18-30	1.25-1.45	0.6-2	0.22-0.24	0.0-2.9	0.5-1.0	.49	.49			
	15-36	2-7	53-63	35-42	1.30-1.50	0.2-0.6	0.17-0.21	6.0-8.9	0.1-0.5	.37	.37			
	36-43	3-15	50-72	25-35	1.30-1.50	0.6-2	0.17-0.21	3.0-5.9	0.1-0.5	.37	.37			
	43-47	15-30	45-65	20-27	1.40-1.60	0.6-2	0.10-0.17	0.0-2.9	0.1-0.5	.37	.37			
	47-80	26-50	35-50	12-25	1.65-1.85	0.2-0.6	0.08-0.14	0.0-2.9	0.1-0.3	.37	.43			
236A: Sabina-----	0-7	2-7	66-83	15-27	1.35-1.55	0.6-2	0.19-0.24	0.0-2.9	1.0-3.5	.43	.43	5	5	56
	7-18	2-7	66-83	15-27	1.40-1.60	0.2-0.6	0.17-0.21	0.0-2.9	0.1-1.0	.55	.55			
	18-30	2-7	53-63	35-40	1.30-1.50	0.2-0.6	0.15-0.19	6.0-8.9	0.1-0.5	.37	.37			
	30-45	3-15	58-72	25-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.1-0.5	.37	.37			
	45-51	30-50	28-50	20-27	1.45-1.65	0.6-2	0.10-0.16	0.0-2.9	0.1-0.5	.32	.37			
	51-80	26-50	35-50	12-25	1.65-1.85	0.2-0.6	0.08-0.14	0.0-2.9	0.1-0.3	.37	.43			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
244A:														
Hartsburg-----	0-17	2-7	58-71	27-35	1.20-1.40	0.6-2	0.15-0.21	3.0-5.9	4.5-6.0	.24	.24	5	6	48
	17-34	2-7	58-71	25-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.5-2.0	.37	.37			
	34-60	3-15	66-82	15-27	1.45-1.65	0.6-2	0.15-0.21	0.0-2.9	0.1-0.5	.49	.49			
257A:														
Clarksdale-----	0-7	2-15	58-80	18-27	1.30-1.50	0.6-2	0.16-0.20	0.0-2.9	1.5-3.5	.37	.37	5	5	56
	7-17	1-15	64-82	15-27	1.30-1.50	0.6-2	0.17-0.21	0.0-2.9	0.3-1.5	.49	.49			
	17-24	2-7	58-71	27-35	1.35-1.55	0.6-2	0.18-0.21	3.0-5.9	0.2-0.5	.37	.37			
	24-52	2-7	48-63	35-45	1.30-1.50	0.2-0.6	0.15-0.18	6.0-8.9	0.1-0.3	.37	.37			
	52-60	2-7	58-71	27-35	1.35-1.55	0.6-2	0.18-0.21	3.0-5.9	0.1-0.3	.43	.43			
	60-80	2-7	66-83	15-27	1.35-1.55	0.6-2	0.19-0.26	0.0-2.9	0.1-0.3	.55	.55			
279B:														
Rozetta-----	0-7	0-7	66-85	15-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	7-11	0-7	66-88	12-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	0.1-1.0	.49	.49			
	11-55	0-7	58-73	27-35	1.35-1.55	0.6-2	0.18-0.22	3.0-5.9	0.0-0.5	.37	.37			
	55-60	0-7	63-80	20-30	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
291B:														
Xenia-----	0-4	2-15	58-82	15-27	1.25-1.50	0.6-2	0.19-0.25	0.0-2.9	1.0-2.5	.43	.43	5	5	56
	4-16	2-15	58-82	15-27	1.35-1.55	0.6-2	0.16-0.22	0.0-2.9	0.3-0.8	.49	.49			
	16-37	2-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.2-0.5	.37	.37			
	37-57	20-40	25-53	24-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.28	.32			
	57-80	26-50	35-50	12-25	1.65-1.85	0.2-0.6	0.08-0.14	0.0-2.9	0.1-0.3	.37	.43			
322C2:														
Russell-----	0-7	3-15	58-77	20-27	1.40-1.60	0.6-2	0.15-0.21	0.0-2.9	0.5-2.0	.43	.43	5	6	48
	7-27	3-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.1-0.5	.43	.43			
	27-56	20-40	27-53	27-33	1.50-1.70	0.6-2	0.12-0.16	3.0-5.9	0.1-0.5	.24	.28			
	56-80	26-50	35-50	12-25	1.65-1.85	0.2-0.6	0.08-0.14	0.0-2.9	0.1-0.3	.37	.43			
330A:														
Peotone-----	0-6	2-7	53-63	35-40	1.25-1.45	0.2-0.6	0.12-0.18	6.0-8.9	4.5-7.0	.24	.24	5	4	86
	6-28	2-7	53-63	35-40	1.35-1.55	0.2-0.6	0.12-0.18	6.0-8.9	2.0-4.0	.28	.28			
	28-44	3-15	53-62	35-40	1.30-1.50	0.2-0.6	0.11-0.17	6.0-8.9	1.5-3.5	.32	.32			
	44-60	3-15	53-70	27-40	1.30-1.50	0.2-0.6	0.11-0.18	3.0-8.9	0.1-1.0	.37	.37			
348B:														
Wingate-----	0-9	2-15	58-82	15-27	1.25-1.50	0.6-2	0.19-0.25	0.0-2.9	2.0-4.0	.37	.37	5	5	56
	9-12	2-15	58-82	15-27	1.35-1.55	0.6-2	0.16-0.22	0.0-2.9	0.5-2.0	.49	.49			
	12-27	2-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.2-0.8	.37	.37			
	27-52	20-40	25-53	24-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.32	.32			
	52-60	30-50	28-50	15-22	1.75-1.95	0.2-0.6	0.08-0.12	0.0-2.9	0.1-0.3	.37	.43			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
481A:														
Raub-----	0-18	2-15	58-82	15-27	1.30-1.50	0.6-2	0.16-0.22	0.0-2.9	3.5-5.0	.28	.28	5	6	48
	18-32	2-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.5-1.5	.37	.37			
	32-50	20-35	30-53	26-35	1.50-1.70	0.6-2	0.12-0.16	3.0-5.9	0.2-0.5	.32	.32			
	50-60	30-50	28-50	20-30	1.65-1.85	0.2-0.6	0.08-0.12	0.0-2.9	0.1-0.5	.37	.37			
533.														
Urban land-----	---	---	---	---	---	---	---	---	---	---	---	--	8	0
618C2:														
Senachwine-----	0-6	15-20	53-65	20-27	1.35-1.55	0.6-2	0.18-0.20	0.0-2.9	0.5-2.0	.32	.32	5	6	48
	6-12	15-21	45-58	27-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.32	.32			
	12-27	20-40	25-53	27-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.32	.32			
	27-80	26-50	35-50	12-25	1.65-1.85	0.2-0.6	0.08-0.14	0.0-2.9	0.1-0.3	.37	.43			
618D2:														
Senachwine-----	0-6	15-20	53-65	20-27	1.35-1.55	0.6-2	0.18-0.20	0.0-2.9	0.5-2.0	.43	.43	5	6	48
	6-15	15-21	45-58	27-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.32	.32			
	15-28	20-40	25-53	27-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.28	.32			
	28-34	30-50	28-50	20-27	1.45-1.65	0.6-2	0.11-0.14	0.0-2.9	0.1-0.5	.28	.32			
	34-80	26-50	35-50	12-25	1.65-1.85	0.2-0.6	0.08-0.14	0.0-2.9	0.1-0.3	.37	.43			
618D3:														
Senachwine-----	0-3	20-40	25-53	27-35	1.45-1.65	0.6-2	0.18-0.20	3.0-5.9	0.3-1.0	.24	.24	4	6	48
	3-25	20-40	25-53	27-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.24	.28			
	25-60	30-50	30-50	10-20	1.65-1.85	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.37	.43			
618F:														
Senachwine-----	0-11	15-40	50-72	10-20	1.40-1.60	0.6-2	0.16-0.22	0.0-2.9	1.0-2.5	.37	.37	5	5	56
	11-17	15-40	25-53	27-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.3-0.8	.32	.32			
	17-32	20-40	25-53	27-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.24	.28			
	32-40	30-50	28-50	20-27	1.45-1.65	0.6-2	0.11-0.14	0.0-2.9	0.1-0.5	.32	.37			
	40-80	26-50	35-50	12-25	1.65-1.85	0.2-0.6	0.08-0.14	0.0-2.9	0.1-0.3	.37	.43			
618G:														
Senachwine-----	0-5	15-40	50-72	10-20	1.40-1.60	0.6-2	0.16-0.22	0.0-2.9	1.0-2.5	.37	.37	5	5	56
	5-11	15-40	50-74	10-20	1.40-1.60	0.6-2	0.15-0.21	0.0-2.9	0.3-0.8	.49	.49			
	11-30	15-40	25-53	27-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.28	.32			
	30-38	30-50	28-50	20-30	1.45-1.65	0.6-2	0.11-0.14	0.0-2.9	0.1-0.5	.32	.37			
	38-80	26-50	35-50	12-25	1.65-1.85	0.2-0.6	0.08-0.14	0.0-2.9	0.1-0.3	.37	.43			
622B2:														
Wyanet-----	0-8	15-30	50-65	20-27	1.40-1.60	0.6-2	0.14-0.22	0.0-2.9	1.5-3.5	.28	.28	5	6	48
	8-24	15-40	25-58	27-35	1.50-1.70	0.6-2	0.12-0.16	3.0-5.9	0.5-1.5	.32	.32			
	24-32	30-50	28-50	20-27	1.45-1.65	0.6-2	0.11-0.14	0.0-2.9	0.1-0.5	.32	.32			
	32-60	26-50	35-50	12-25	1.65-1.85	0.2-0.6	0.08-0.14	0.0-2.9	0.1-0.3	.37	.43			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility	Wind erodi- bility index
										Kw	Kf	T	group	
622C2:	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
Wyanet-----	0-8	15-30	50-65	20-27	1.40-1.60	0.6-2	0.14-0.22	0.0-2.9	1.5-3.5	.28	.28	5	6	48
	8-26	15-40	25-58	27-35	1.50-1.70	0.6-2	0.12-0.16	3.0-5.9	0.5-1.5	.32	.37			
	26-34	30-50	28-50	20-27	1.45-1.65	0.6-2	0.11-0.14	0.0-2.9	0.1-0.5	.32	.32			
	34-80	26-50	35-50	12-25	1.65-1.85	0.2-0.6	0.08-0.14	0.0-2.9	0.1-0.3	.37	.43			
675B:														
Greenbush-----	0-6	0-7	68-82	18-25	1.25-1.30	0.6-2	0.21-0.23	0.0-2.9	2.0-3.0	.37	.37	5	6	48
	6-17	0-7	66-85	15-27	1.30-1.35	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.43	.43			
	17-75	0-7	58-74	26-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.37	.37			
	75-80	0-7	66-82	18-27	1.35-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.49	.49			
679B:														
Blackberry-----	0-16	0-10	63-82	18-27	1.10-1.30	0.6-2	0.22-0.24	0.0-2.9	3.0-5.0	.28	.28	5	6	48
	16-47	1-10	55-74	25-35	1.20-1.40	0.6-2	0.18-0.20	3.0-5.9	0.2-1.0	.37	.37			
	47-62	20-50	35-55	15-25	1.40-1.60	0.6-2	0.11-0.22	0.0-2.9	0.1-0.5	.32	.32			
	62-70	30-60	20-55	5-20	1.50-1.70	0.6-2	0.13-0.17	0.0-2.9	0.1-0.5	.37	.37			
684B:														
Broadwell-----	0-15	5-15	58-75	20-27	1.25-1.45	0.6-2	0.23-0.26	0.0-2.9	3.0-4.0	.28	.28	5	6	48
	15-50	0-10	55-76	24-35	1.35-1.60	0.6-2	0.14-0.24	3.0-5.9	0.0-1.0	.37	.37			
	50-55	40-80	0-35	10-28	1.30-1.35	2-6	0.11-0.17	0.0-2.9	0.0-0.5	.32	.32			
	55-80	70-90	0-27	3-10	1.55-1.75	6-20	0.08-0.11	0.0-2.9	0.0-0.5	.15	.15			
687C2:														
Penfield-----	0-7	30-45	35-50	15-27	1.30-1.50	0.6-2	0.15-0.21	0.0-2.9	1.5-3.5	.28	.28	5	6	48
	7-13	25-50	28-50	20-27	1.45-1.65	0.6-2	0.11-0.16	0.0-2.9	0.5-1.5	.32	.32			
	13-37	20-40	25-53	27-35	1.50-1.70	0.6-2	0.12-0.16	3.0-5.9	0.1-0.5	.32	.32			
	37-42	52-60	20-36	12-20	1.50-1.70	2-6	0.07-0.10	0.0-2.9	0.1-0.5	.28	.28			
	42-60	60-90	0-35	5-15	1.50-1.70	6-20	0.04-0.06	0.0-2.9	0.0-0.5	.10	.10			
705B:														
Buckhart-----	0-15	0-7	67-80	20-26	1.25-1.30	0.6-2	0.22-0.24	0.0-2.9	3.0-4.0	.28	.28	5	6	48
	15-67	0-7	58-75	25-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.2-1.0	.37	.37			
	67-80	0-7	66-82	18-27	1.35-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
712A:														
Spaulding-----	0-22	1-7	58-72	27-35	1.05-1.25	0.6-2	0.21-0.24	3.0-5.9	4.0-6.0	.24	.24	5	4L	86
	22-38	1-7	58-72	27-35	1.20-1.50	0.6-2	0.18-0.22	3.0-5.9	0.5-2.0	.37	.37			
	38-44	1-7	66-75	22-35	1.25-1.55	0.6-2	0.17-0.22	3.0-5.9	0.5-1.0	.37	.37			
	44-80	1-7	66-79	20-27	1.30-1.55	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
722A:	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
Drummer-----	0-14	3-15	50-70	27-35	1.20-1.40	0.6-2	0.12-0.18	3.0-5.9	4.5-7.0	.24	.24	5	6	48
	14-41	3-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.5-2.0	.37	.37			
	41-47	25-45	28-50	20-27	1.45-1.65	0.6-2	0.11-0.17	0.0-2.9	0.2-0.5	.32	.32			
	47-60	45-65	25-45	10-20	1.55-1.75	0.6-2	0.11-0.17	0.0-2.9	0.1-0.5	.24	.28			
Milford-----	0-14	2-15	45-63	35-40	1.30-1.50	0.2-0.6	0.12-0.18	6.0-8.9	4.5-6.0	.24	.24	5	4	86
	14-25	3-15	40-62	35-45	1.35-1.55	0.2-0.6	0.11-0.17	6.0-8.9	1.0-2.0	.32	.32			
	25-45	5-20	45-68	27-35	1.50-1.70	0.6-2	0.13-0.19	3.0-5.9	0.1-0.5	.37	.37			
	45-80	15-30	50-65	20-27	1.50-1.70	0.6-2	0.09-0.14	0.0-2.9	0.1-0.5	.43	.43			
737B:														
Tama, very deep to sand-----	0-16	0-10	63-75	20-27	1.25-1.45	0.6-2	0.16-0.20	0.0-2.9	3.0-4.0	.28	.28	5	6	48
	16-70	0-10	55-76	24-35	1.35-1.60	0.6-2	0.16-0.22	3.0-5.9	0.0-1.0	.37	.37			
	70-80	75-97	1-18	1-10	1.40-1.90	6-20	0.08-0.11	0.0-2.9	0.0-0.5	.15	.15			
749B:														
Buckhart, till substratum-----	0-13	0-7	67-80	20-26	1.25-1.30	0.6-2	0.22-0.24	0.0-2.9	3.0-4.0	.28	.28	5	6	48
	13-59	0-7	58-75	25-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.2-1.0	.37	.37			
	59-69	0-7	66-82	18-27	1.35-1.45	0.6-2	0.20-0.22	0.0-2.9	0.1-0.5	.49	.49			
	69-80	30-40	33-50	15-27	1.65-1.85	0.2-0.6	0.08-0.12	0.0-2.9	0.1-0.5	.37	.37			
802B:														
Orthents, loamy-----	0-10	20-45	20-53	27-35	1.50-1.70	0.2-0.6	0.16-0.20	3.0-5.9	0.5-2.0	.43	.43	5	6	48
	10-60	15-50	20-63	22-30	1.40-1.75	0.06-2	0.12-0.16	3.0-5.9	0.0-1.0	.43	.43			
802D:														
Orthents, loamy-----	0-10	20-45	20-53	27-35	1.50-1.70	0.2-0.6	0.09-0.15	3.0-5.9	0.5-2.0	.43	.43	5	6	48
	10-60	15-50	20-63	22-30	1.40-1.75	0.06-2	0.09-0.15	3.0-5.9	0.0-0.5	.43	.43			
865:														
Pits, gravel-----	---	---	---	---	---	---	---	---	---	---	---	--	7	38
1083A:														
Wabash, undrained---	0-10	1-18	41-58	40-55	1.20-1.40	0.02-0.06	0.11-0.17	6.0-8.9	3.5-6.5	.24	.24	5	8	0
	10-33	0-17	40-59	40-57	1.35-1.55	0.0015-0.01	0.08-0.14	6.0-8.9	1.5-4.5	.28	.28			
	33-60	0-19	40-59	40-58	1.30-1.50	0.0015-0.01	0.11-0.17	6.0-8.9	0.1-1.5	.32	.32			
1107A:														
Sawmill, undrained--	0-29	3-15	58-70	27-35	1.25-1.45	0.6-2	0.19-0.22	3.0-5.9	4.5-7.0	.28	.28	5	8	0
	29-38	3-20	45-68	27-35	1.30-1.50	0.6-2	0.17-0.20	3.0-5.9	1.5-3.5	.32	.32			
	38-60	4-25	40-70	25-35	1.30-1.50	0.6-2	0.17-0.20	3.0-5.9	0.8-3.5	.32	.32			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
3073A:														
Ross-----	0-13	20-35	50-65	15-27	1.20-1.45	0.6-2	0.17-0.22	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	13-43	20-45	28-62	18-27	1.20-1.50	0.6-2	0.14-0.18	0.0-2.9	1.0-3.0	.28	.28			
	43-60	40-70	10-55	5-20	1.35-1.60	0.6-6	0.05-0.18	0.0-2.9	0.5-1.0	.28	.28			
3077A:														
Huntsville-----	0-43	0-15	58-82	18-27	1.15-1.35	0.6-2	0.22-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	43-60	5-30	43-77	18-27	1.20-1.40	0.6-2	0.20-0.22	0.0-2.9	0.2-0.5	.49	.49			
3083A:														
Wabash-----	0-10	1-18	41-58	40-55	1.20-1.40	0.02-0.06	0.11-0.17	6.0-8.9	3.5-6.5	.24	.24	5	4	86
	10-33	0-17	40-59	40-57	1.35-1.55	0.0015-0.01	0.08-0.14	6.0-8.9	1.5-4.5	.28	.28			
	33-60	0-19	40-59	40-58	1.30-1.50	0.0015-0.01	0.11-0.17	6.0-8.9	0.1-1.5	.32	.32			
3107A:														
Sawmill-----	0-10	3-15	58-70	27-35	1.25-1.45	0.6-2	0.12-0.18	3.0-5.9	4.5-7.0	.28	.28	5	6	48
	10-32	3-15	58-70	27-35	1.25-1.45	0.6-2	0.12-0.18	3.0-5.9	4.5-7.0	.28	.28			
	32-58	5-20	45-68	27-35	1.30-1.50	0.6-2	0.12-0.18	3.0-5.9	1.5-3.5	.32	.32			
	58-65	5-25	40-70	25-35	1.30-1.50	0.6-2	0.12-0.18	3.0-5.9	0.8-3.5	.32	.32			
3284A:														
Tice-----	0-21	3-15	58-70	27-35	1.25-1.45	0.6-2	0.12-0.18	3.0-5.9	2.0-4.0	.28	.28	5	6	48
	21-66	5-20	45-68	22-35	1.30-1.50	0.6-2	0.13-0.19	3.0-5.9	0.5-1.0	.37	.37			
	66-80	15-30	50-65	20-27	1.50-1.70	0.6-2	0.09-0.14	0.0-2.9	0.1-0.5	.43	.43			
3333A:														
Wakeland-----	0-9	1-26	56-88	10-18	1.30-1.50	0.6-2	0.21-0.25	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	9-60	1-26	56-88	10-18	1.30-1.50	0.6-2	0.19-0.23	0.0-2.9	0.3-1.0	.55	.55			
3352A:														
Palms-----	0-8	3-15	58-70	27-35	1.15-1.35	0.6-2	0.19-0.22	3.0-5.9	4.5-10	.20	.20	2	8	0
	8-46	7-15	58-66	27-35	0.10-0.30	6-60	0.29-0.37	12.0-27.9	35-87	---	---			
	46-60	45-65	25-45	10-20	1.40-1.60	2-6	0.11-0.17	0.0-2.9	1.0-5.0	.24	.24			
3451A:														
Lawson-----	0-8	3-15	58-79	18-27	1.25-1.45	0.6-2	0.16-0.22	0.0-2.9	3.5-7.0	.32	.32	5	6	48
	8-35	3-15	58-79	18-30	1.30-1.50	0.6-2	0.16-0.22	0.0-2.9	3.0-5.0	.32	.32			
	35-80	15-30	45-65	20-30	1.40-1.60	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.37	.37			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
7134B: Camden, rarely flooded-----	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
	0-9	2-7	66-83	15-27	1.35-1.55	0.6-2	0.22-0.24	0.0-2.9	1.0-2.5	.43	.43	5	5	56
	9-14	2-7	66-83	15-27	1.40-1.60	0.6-2	0.17-0.20	0.0-2.9	0.3-0.8	.55	.55			
	14-22	2-7	66-76	22-27	1.30-1.50	0.6-2	0.18-0.23	0.0-2.9	0.1-0.5	.49	.49			
	22-35	3-15	50-70	27-35	1.35-1.55	0.6-2	0.16-0.20	3.0-5.9	0.1-0.5	.37	.37			
	35-52	25-54	28-50	18-30	1.45-1.65	0.6-2	0.11-0.18	0.0-2.9	0.1-0.2	.32	.37			
	52-80	45-65	25-45	10-22	1.50-1.70	0.6-6	0.08-0.15	0.0-2.9	0.1-0.2	.32	.32			
7136A: Brooklyn, rarely flooded-----	0-9	2-14	65-82	15-22	1.30-1.50	0.6-2	0.19-0.25	0.0-2.9	1.5-3.5	.37	.37	3	5	56
	9-14	2-15	71-82	14-22	1.35-1.55	0.2-0.6	0.20-0.26	0.0-2.9	0.2-0.8	.55	.55			
	14-40	0-10	47-63	35-45	1.30-1.50	0.06-0.2	0.11-0.17	6.0-8.9	0.1-0.5	.37	.37			
	40-62	20-44	23-52	27-40	1.50-1.70	0.2-0.6	0.12-0.18	3.0-5.9	0.1-0.5	.28	.32			
	62-80	29-61	28-44	10-27	1.55-1.75	0.6-2	0.11-0.15	0.0-2.9	0.1-0.3	.32	.37			
7198A: Elburn-----	0-16	2-7	66-76	22-27	1.25-1.45	0.6-2	0.22-0.24	0.0-2.9	3.5-5.0	.28	.28	5	6	48
	16-49	2-7	58-73	25-35	1.35-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.5	.37	.37			
	49-58	30-55	30-55	15-20	1.45-1.65	0.6-2	0.14-0.17	0.0-2.9	0.1-0.5	.37	.37			
	58-62	60-80	10-25	5-15	1.50-1.70	2-6	0.06-0.10	0.0-2.9	0.1-0.5	.24	.24			
7199B: Plano-----	0-9	2-7	66-78	20-27	1.40-1.60	0.6-2	0.18-0.22	0.0-2.9	3.0-4.0	.28	.28	5	6	48
	9-46	2-7	58-71	27-35	1.35-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.5	.43	.43			
	46-53	30-70	10-50	15-32	1.50-1.70	0.6-6	0.09-0.16	0.0-2.9	0.1-0.5	.28	.28			
	53-80	39-89	3-51	5-20	1.60-1.80	2-6	0.09-0.14	0.0-2.9	0.1-0.5	.20	.20			
7802B: Orthents, loamy, rarely flooded----	0-10	20-45	20-53	27-35	1.50-1.70	0.2-0.6	0.16-0.20	3.0-5.9	0.5-2.0	.43	.43	5	6	48
	10-60	15-50	20-63	22-30	1.40-1.75	0.06-2	0.12-0.16	3.0-5.9	0.0-1.0	.43	.43			
7865. Pits, gravel														
8070A: Beaucoup-----	0-15	0-15	55-70	27-35	1.15-1.35	0.2-0.6	0.15-0.20	3.0-5.9	5.0-6.0	.28	.28	5	6	48
	15-48	0-15	55-70	27-35	1.30-1.50	0.2-0.6	0.18-0.20	3.0-5.9	0.0-2.0	.32	.32			
	48-60	5-40	45-70	15-30	1.35-1.55	0.2-0.6	0.18-0.22	0.0-2.9	0.0-1.0	.32	.32			
	60-80	5-40	45-70	10-30	1.40-1.65	0.2-0.6	0.18-0.22	0.0-2.9	0.0-1.0	.32	.32			

Soil Survey of Macon County, Illinois

Table 20.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbon- ate	Sodium adsorp- tion ratio
	In	meq/100 g	meq/100 g	pH	Pct	
43A:						
Ipava-----	0-10	13-23	---	5.6-7.3	0	0
	10-18	22-29	---	5.6-7.3	0	0
	18-31	27-35	---	5.6-7.3	0	0
	31-50	20-27	---	6.6-7.8	0-5	0
	50-60	11-21	---	7.4-8.4	0-15	0
45A:						
Denny-----	0-8	17-22	---	5.6-7.3	0	0
	8-21	11-18	---	5.6-6.5	0	0
	21-46	23-33	---	5.6-6.5	0	0
	46-80	18-26	---	6.1-7.8	0	0
56B:						
Dana-----	0-11	16-23	---	5.6-7.3	0	0
	11-32	21-28	---	5.1-7.3	0	0
	32-58	14-19	---	5.6-7.8	0-5	0
	58-80	6.3-13	---	7.4-8.4	15-40	0-6
56B2:						
Dana-----	0-7	17-23	---	5.6-6.5	0	0
	7-34	21-28	---	5.1-7.3	0	0
	34-53	14-18	---	5.6-7.8	0-5	0
	53-80	6.3-13	---	7.4-8.4	15-40	0-6
56C2:						
Dana-----	0-8	22-25	---	6.1-7.3	0	0
	8-32	21-28	---	5.6-7.3	0	0
	32-47	14-18	---	6.1-7.8	0-5	0
	47-80	6.3-13	---	7.4-8.4	15-40	0-6
67A:						
Harpster-----	0-18	23-27	---	7.9-8.4	15-40	0
	18-41	22-26	---	7.4-8.4	5-40	0
	41-56	12-20	---	7.9-8.4	5-40	0
	56-60	12-20	---	7.9-8.4	10-40	0
68A:						
Sable-----	0-23	23-29	---	5.6-6.5	0	0
	23-38	21-28	---	6.1-7.3	0	0
	38-47	18-21	---	6.6-7.8	0-5	0
	47-60	14-21	---	7.4-8.4	0-15	0
86B:						
Osco-----	0-14	18-25	---	5.1-7.3	0	0
	14-55	15-24	11-18	5.1-6.5	0	0
	55-60	12-18	---	5.6-7.8	0-15	0
88C:						
Sparta-----	0-12	4.9-11	---	5.1-7.3	0	0
	12-31	1.0-9.2	---	5.1-7.3	0	0
	31-80	0.0-9.2	---	5.6-7.8	0	0
119C2:						
Elco-----	0-8	14-22	---	5.6-7.3	0	0
	8-31	14-22	---	5.1-7.8	0	0-5
	31-60	15-27	---	5.1-7.8	0	0-5

Soil Survey of Macon County, Illinois

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbon- ate	Sodium adsorp- tion ratio
	In	meq/100 g	meq/100 g	pH	Pct	
132A:						
Starks-----	0-8	13-23	---	5.1-7.3	0	0
	8-13	12-22	---	5.1-7.3	0	0
	13-36	20-27	---	4.5-6.5	0	0
	36-44	8.3-23	---	5.1-7.3	0-5	0
	44-60	4.3-16	---	6.1-7.8	0-5	0
134B:						
Camden-----	0-9	13-23	---	6.1-7.3	0	0
	9-14	12-22	---	6.1-7.3	0	0
	14-22	17-21	---	6.1-7.3	0	0
	22-35	20-27	---	5.6-6.5	0	0
	35-52	9.3-16	---	5.1-6.5	0	0
	52-80	5.2-12	---	5.6-7.8	0-25	0
136A:						
Brooklyn-----	0-9	13-19	---	5.6-7.3	0	0
	9-14	11-18	---	4.5-7.3	0	0
	14-40	25-34	---	4.5-7.3	0	0
	40-62	14-21	---	5.1-7.8	0-5	0
	62-73	5.2-14	---	6.6-7.8	0-15	0
	73-80	6.3-13	---	7.4-8.4	15-40	0-6
138A:						
Shiloh-----	0-19	29-33	---	6.1-7.3	0	0
	19-48	27-36	---	6.1-7.3	0	0
	48-68	24-34	---	6.1-7.3	0	0
	68-80	26-38	---	6.1-7.8	0	0-5
148B:						
Proctor-----	0-13	15-24	---	5.1-7.8	0	0
	13-25	16-25	---	5.6-7.3	0	0
	25-45	15-23	---	5.6-7.3	0	0
	45-60	4.0-12	---	6.1-7.8	0-10	0
148C2:						
Proctor-----	0-13	17-23	---	5.6-6.5	0	0
	13-36	21-28	---	5.6-7.3	0	0
	36-46	10-16	---	6.1-7.3	0	0
	46-60	2.6-8.0	---	6.1-7.8	0-15	0
152A:						
Drummer-----	0-14	23-30	---	5.6-7.3	0	0
	14-41	22-28	---	5.6-7.3	0	0
	41-47	10-14	---	6.6-7.8	0-5	0
	47-60	5.2-11	---	7.4-8.4	0-15	0
153A:						
Pella-----	0-15	23-30	---	6.1-7.8	0	0
	15-21	22-28	---	6.6-7.8	0-10	0
	21-34	12-21	---	7.4-8.4	5-30	0
	34-80	2.6-11	---	7.4-8.4	15-40	0
154A:						
Flanagan-----	0-18	17-23	---	5.6-7.3	0	0
	18-38	27-32	---	5.6-7.3	0	0
	38-45	19-27	---	5.6-7.3	0	0
	45-49	10-14	---	6.1-7.8	0-10	0
	49-80	6.3-13	---	7.4-8.4	15-40	0-6

Soil Survey of Macon County, Illinois

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbon- ate	Sodium adsorp- tion ratio
	In	meq/100 g	meq/100 g	pH	Pct	
171B:						
Catlin-----	0-11	16-23	---	6.1-7.3	0	0
	11-16	22-29	---	5.6-7.3	0	0
	16-41	21-28	---	5.6-7.3	0	0
	41-45	14-18	---	7.4-8.4	0-5	0
	45-80	6.3-13	---	7.4-8.4	15-40	0-6
198A:						
Elburn-----	0-16	19-23	---	6.1-7.3	0	0
	16-49	20-28	---	5.6-7.8	0	0
	49-58	7.8-11	---	6.6-7.8	0-5	0
	58-62	2.6-8.0	---	6.6-7.8	0-15	0
199A:						
Plano-----	0-14	16-23	---	6.1-7.3	0	0
	14-49	16-27	---	5.1-7.3	0	0
	49-60	7.8-17	---	5.6-7.8	0	0
	60-80	2.6-11	---	5.6-8.4	0-20	0
199B:						
Plano-----	0-15	16-23	---	6.1-7.3	0	0
	15-45	16-27	---	5.1-7.3	0	0
	45-55	7.8-17	---	5.6-7.8	0	0
	55-80	2.6-11	---	5.6-8.4	0-20	0
199C2:						
Plano-----	0-8	16-23	---	6.1-7.3	0	0
	8-41	16-27	---	5.1-7.3	0	0
	41-53	7.8-17	---	5.6-7.8	0	0
	53-80	2.6-11	---	5.6-8.4	0-20	0
206A:						
Thorp-----	0-14	20-28	---	5.1-7.8	0	0
	14-19	11-17	---	5.1-7.3	0	0
	19-43	14-23	---	5.1-7.3	0	0
	43-50	11-19	---	5.6-7.8	0-5	0
	50-65	3.0-19	---	6.1-8.4	0-20	0
233B:						
Birkbeck-----	0-4	13-24	---	5.6-7.3	0	0
	4-9	9.0-24	7.9-14	4.5-6.5	0	0
	9-54	21-27	14-18	4.5-7.3	0	0
	54-60	7.0-17	---	6.1-7.8	0-5	0
	60-68	4.0-16	---	7.4-8.4	15-40	0
234A:						
Sunbury-----	0-8	16-21	---	5.6-7.3	0	0
	8-15	15-24	---	5.6-7.3	0	0
	15-36	25-32	---	5.6-7.3	0	0
	36-43	19-27	---	6.1-7.8	0	0
	43-47	8.0-14	---	6.1-7.8	0-10	0
	47-80	6.3-13	---	7.4-8.4	15-40	0-6
236A:						
Sabina-----	0-7	13-23	---	5.1-7.3	0	0
	7-18	---	7.6-14	4.5-7.3	0	0
	18-30	25-30	---	4.5-7.3	0	0
	30-45	19-27	---	4.5-7.3	0-5	0
	45-51	10-14	---	6.6-7.8	0-5	0
	51-80	6.3-13	---	7.4-8.4	15-40	0-6

Soil Survey of Macon County, Illinois

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbon- ate	Sodium adsorp- tion ratio
	In	meq/100 g	meq/100 g	pH	Pct	
244A:						
Hartsburg-----	0-17	23-29	---	6.1-7.8	0-5	0
	17-34	20-28	---	6.6-8.4	0-25	0
	34-60	12-21	---	7.4-8.4	15-40	0
257A:						
Clarksdale-----	0-7	14-29	---	5.6-7.3	0	0
	7-17	14-29	---	5.1-7.3	0	0
	17-24	20-27	---	5.1-7.3	0	0
	24-52	25-33	---	5.6-7.3	0	0
	52-60	20-26	---	6.1-7.8	0-5	0
	60-80	12-21	---	6.6-8.4	0-15	0
279B:						
Rozetta-----	0-7	10-22	---	5.1-7.3	0	0
	7-11	7.0-17	---	4.5-7.3	0	0
	11-55	16-22	---	4.5-6.0	0	0
	55-60	12-17	---	5.6-7.8	0-15	0
291B:						
Xenia-----	0-4	13-23	---	5.6-7.3	0	0
	4-16	12-22	---	5.6-7.3	0	0
	16-37	20-27	---	5.1-7.3	0	0
	37-57	12-18	---	5.6-7.3	0-5	0
	57-80	6.3-13	---	7.4-8.4	15-40	0-6
322C2:						
Russell-----	0-7	16-22	---	5.6-6.5	0	0
	7-27	20-27	13-18	4.5-5.5	0	0
	27-56	14-17	---	5.6-7.3	0-5	0
	56-80	6.3-13	---	7.4-8.4	15-40	0-6
330A:						
Peotone-----	0-6	29-33	---	5.6-7.3	0	0
	6-28	28-33	---	6.1-7.8	0	0
	28-44	28-33	---	6.1-7.8	0	0
	44-60	20-31	---	6.6-8.4	0-15	0
348B:						
Wingate-----	0-9	14-24	---	5.6-7.3	0	0
	9-12	12-20	---	5.6-7.3	0	0
	12-27	18-27	---	5.1-7.3	0	0
	27-52	11-22	---	5.6-7.3	0-5	0
	52-60	4.0-13	---	6.6-8.4	15-40	0
481A:						
Raub-----	0-18	16-32	---	5.6-7.3	0	0
	18-32	18-27	---	5.1-6.5	0	0
	32-50	12-24	---	6.1-7.8	0-5	0
	50-60	4.0-16	---	7.4-8.4	15-40	0
533.						
Urban land						
618C2:						
Senachwine-----	0-6	11-15	---	5.6-7.3	0	0
	6-12	14-18	---	5.6-7.3	0	0
	12-27	14-18	---	5.1-7.3	0	0
	27-80	6.3-13	---	7.4-8.4	15-40	0-6

Soil Survey of Macon County, Illinois

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbon- ate	Sodium adsorp- tion ratio
	In	meq/100 g	meq/100 g	pH	Pct	
618D2:						
Senachwine-----	0-6	11-15	---	5.6-7.3	0	0
	6-15	14-18	---	5.6-7.3	0	0
	15-28	14-18	---	5.1-7.3	0	0
	28-34	10-14	---	5.1-7.3	0-5	0
	34-80	6.3-13	---	7.4-8.4	15-40	0-6
618D3:						
Senachwine-----	0-3	14-19	---	5.6-7.3	0	0
	3-25	14-18	---	5.1-7.3	0	0
	25-60	5.1-11	---	7.4-8.4	15-40	0
618F:						
Senachwine-----	0-11	5.4-11	---	5.6-7.3	0	0
	11-17	14-19	---	5.1-7.3	0	0
	17-32	14-18	---	5.1-7.3	0	0
	32-40	10-14	---	6.6-7.8	0-5	0
	40-80	6.3-13	---	7.4-8.4	15-40	0-6
618G:						
Senachwine-----	0-5	5.4-11	---	5.6-7.3	0	0
	5-11	5.3-11	---	5.6-7.3	0	0
	11-30	---	9.1-15	5.1-7.3	0	0
	30-38	10-16	---	5.1-7.3	0-5	0
	38-80	6.3-13	---	7.4-8.4	15-40	0-6
622B2:						
Wyanet-----	0-8	10-22	---	5.6-7.3	0	0
	8-24	12-24	---	5.6-7.3	0	0
	24-32	9.0-19	---	7.4-8.4	0-5	0
	32-60	6.3-13	---	7.4-8.4	15-40	0-6
622C2:						
Wyanet-----	0-8	11-15	---	5.6-7.3	0	0
	8-26	14-19	---	5.6-7.3	0	0
	26-34	10-14	---	7.4-8.4	0-5	0
	34-80	6.3-13	---	7.4-8.4	15-40	0-6
675B:						
Greenbush-----	0-6	16-21	---	5.1-7.3	0	0
	6-17	12-22	---	5.1-7.3	0	0
	17-75	20-28	13-18	4.5-7.3	0	0
	75-80	13-21	---	5.6-7.3	0	0
679B:						
Blackberry-----	0-16	17-26	---	6.1-7.3	0	0
	16-47	15-23	---	5.1-7.3	0	0
	47-62	9.0-22	---	5.6-8.4	0-10	0
	62-70	3.0-19	---	5.6-8.4	0-20	0
684B:						
Broadwell-----	0-15	18-27	---	5.6-7.3	0	0
	15-50	15-23	---	5.6-7.3	0	0
	50-55	15-20	---	5.6-7.3	0	0
	55-80	2.0-7.0	---	5.6-7.3	0	0
687C2:						
Penfield-----	0-7	8.1-15	---	5.6-7.8	0	0
	7-13	11-15	---	5.6-7.3	0	0
	13-37	14-18	---	5.1-7.3	0	0
	37-42	6.3-11	---	6.1-7.3	0-5	0
	42-60	2.6-8.0	---	6.6-7.8	0-15	0

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Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbon- ate	Sodium adsorp- tion ratio
	In	meq/100 g	meq/100 g	pH	Pct	
705B:						
Buckhart-----	0-15	18-25	---	5.6-7.3	0	0
	15-67	15-23	---	5.6-7.8	0	0
	67-80	12-18	---	6.6-7.8	0-15	0
712A:						
Spaulding-----	0-22	24-33	---	7.4-8.4	15-40	0
	22-38	17-25	---	7.4-8.4	5-35	0
	38-44	14-23	---	7.4-8.4	5-35	0
	44-80	12-17	---	7.4-8.4	10-40	0
722A:						
Drummer-----	0-14	23-30	---	5.6-7.3	0	0
	14-41	21-28	---	5.6-7.3	0	0
	41-47	10-14	---	6.1-7.8	0-5	0
	47-60	5.2-11	---	6.6-8.4	0-15	0
Milford-----	0-14	29-33	---	5.6-7.3	0	0
	14-25	27-35	---	6.1-7.8	0	0
	25-45	20-27	---	6.1-7.8	0-15	0
	45-80	10-14	---	6.6-8.4	0-25	0
737B:						
Tama, very deep to sand-----	0-16	18-27	---	5.6-7.3	0	0
	16-70	15-23	---	5.6-7.3	0	0
	70-80	2.6-8.6	---	5.6-7.3	0	0
749B:						
Buckhart, till substratum-----	0-13	18-25	---	5.6-7.3	0	0
	13-59	15-23	---	5.6-7.8	0	0
	59-69	14-21	---	6.6-7.8	0-15	0
	69-80	4.0-16	---	7.4-8.4	15-40	0
802B:						
Orthents, loamy-----	0-10	9.6-13	---	5.6-7.8	0-10	0
	10-60	7.3-11	---	5.6-7.8	0-15	0
802D:						
Orthents, loamy-----	0-10	18-25	---	5.6-7.8	0-10	0
	10-60	11-19	---	5.6-7.8	0-15	0
865.						
Pits, gravel						
1083A:						
Wabash, undrained----	0-10	31-42	---	6.1-7.3	0	0
	10-33	25-43	---	6.1-7.8	0	0
	33-60	25-42	---	6.1-7.8	0	0
1107A:						
Sawmill, undrained---	0-29	23-36	---	6.6-7.3	0	0
	29-38	18-34	---	6.6-7.3	0	0
	38-60	18-34	---	6.6-7.3	0-5	0
3073A:						
Ross-----	0-13	13-23	---	6.1-7.3	0	0
	13-43	12-26	---	6.1-7.3	0	0
	43-60	4.6-17	---	6.1-7.8	0-1	0

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Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbon- ate	Sodium adsorp- tion ratio
	In	meq/100 g	meq/100 g	pH	Pct	
3077A:						
Huntsville-----	0-43	17-24	---	5.6-7.8	0	0
	43-60	11-17	---	5.6-7.8	0	0
3083A:						
Wabash-----	0-10	31-42	---	6.1-7.3	0	0
	10-33	25-43	---	6.1-7.8	0	0
	33-60	25-42	---	6.1-7.8	0	0
3107A:						
Sawmill-----	0-10	23-30	---	6.1-7.8	0	0
	10-32	23-30	---	6.1-7.8	0	0
	32-58	22-29	---	6.1-7.8	0	0
	58-65	20-29	---	6.1-7.8	0-5	0
3284A:						
Tice-----	0-21	22-29	---	6.1-7.3	0	0
	21-66	18-27	---	5.6-7.3	0	0
	66-80	10-14	---	6.6-7.8	0	0
3333A:						
Wakeland-----	0-9	8.9-16	---	5.6-7.3	0	0
	9-60	8.5-15	---	5.6-7.8	0	0
3352A:						
Palms-----	0-8	20-27	---	5.6-7.8	0	0
	8-46	61-192	---	5.6-7.8	0-5	0
	46-60	5.3-10.0	---	6.6-8.4	0-15	0
3451A:						
Lawson-----	0-8	13-34	---	6.1-7.3	0	0
	8-35	11-28	---	6.1-7.3	0	0
	35-80	13-26	---	6.1-7.8	0-3	0
7134B:						
Camden, rarely flooded-----	0-9	13-22	---	6.1-7.3	0	0
	9-14	12-22	---	6.1-7.3	0	0
	14-22	16-21	---	6.1-7.3	0	0
	22-35	20-27	---	5.6-6.5	0	0
	35-52	14-23	---	5.1-6.5	0	0
	52-80	7.9-17	---	5.6-7.8	0-25	0
7136A:						
Brooklyn, rarely flooded-----	0-9	13-19	---	5.6-7.3	0	0
	9-14	11-18	---	4.5-7.3	0	0
	14-40	25-34	---	4.5-7.3	0	0
	40-62	20-30	---	5.1-7.8	0-5	0
	62-80	8.1-21	---	6.6-7.8	0-15	0
7198A:						
Elburn-----	0-16	16-32	---	6.1-7.3	0	0
	16-49	17-31	---	5.6-7.3	0	0
	49-58	6.0-13	---	6.6-7.8	0-5	0
	58-62	2.0-10	---	6.6-7.8	0-15	0
7199B:						
Plano-----	0-9	17-23	---	6.1-7.3	0	0
	9-46	21-28	---	5.6-7.3	0	0
	46-53	7.8-17	---	5.6-7.8	0	0
	53-80	2.6-11	---	5.6-8.4	0-20	0

Soil Survey of Macon County, Illinois

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbon- ate	Sodium adsorp- tion ratio
	In	meq/100 g	meq/100 g	pH	Pct	
7802B: Orthents, loamy, rarely flooded-----	0-10	14-22	---	5.6-7.8	0-10	0
	10-60	11-17	---	5.6-7.8	0-15	0
7865. Pits, gravel						
8070A: Beaucoup-----	0-15	26-33	---	5.6-7.8	0	0
	15-48	16-25	---	5.6-7.8	0	0
	48-60	9.0-20	---	6.1-7.8	0-5	0
	60-80	6.0-20	---	6.1-8.4	0-25	0

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Table 21.--Water Features

(See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydro- logic group	Months	Water table			Ponding			Flooding	
			Upper limit	Lower limit	Kind of water table	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft		Ft				
43A: Ipava-----	B	Jan-May	1.0-2.0	>6.0	Apparent	---	---	None	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	None	---	None
45A: Denny-----	D	Jan-May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
56B: Dana-----	B	Jan	>6.0	>6.0	---	---	---	None	---	None
		Feb-Apr	2.0-3.5	3.5-5.5	Perched	---	---	None	---	None
		May-Dec	>6.0	>6.0	---	---	---	None	---	None
56B2: Dana-----	B	Jan	>6.0	>6.0	---	---	---	None	---	None
		Feb-Apr	2.0-3.5	3.3-5.0	Perched	---	---	None	---	None
		May-Dec	>6.0	>6.0	---	---	---	None	---	None
56C2: Dana-----	B	Jan	>6.0	>6.0	---	---	---	None	---	None
		Feb-Apr	2.0-3.5	3.3-5.0	Perched	---	---	None	---	None
		May-Dec	>6.0	>6.0	---	---	---	None	---	None
67A: Harpster-----	B/D	Jan-May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	None	---	None
68A: Sable-----	B/D	Jan-May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
86B: Osco-----	B	Jan	>6.0	>6.0	---	---	---	None	---	None
		Feb-Apr	4.0-6.0	>6.0	Apparent	---	---	None	---	None
		May-Dec	>6.0	>6.0	---	---	---	None	---	None
88C: Sparta-----	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
119C2: Elco-----	B	Jan	>6.0	>6.0	---	---	---	None	---	None
		Feb-Apr	2.0-3.5	2.8-4.5	Perched	---	---	None	---	None
		May-Dec	>6.0	>6.0	---	---	---	None	---	None
132A: Starks-----	B	Jan-May	1.0-2.0	>6.0	Apparent	---	---	None	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	None	---	None
134B: Camden-----	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
136A: Brooklyn-----	C/D	Jan-May	0.0-1.0	5.0-6.7	Perched	0.0-0.5	Brief	Frequent	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None

Soil Survey of Macon County, Illinois

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Months	Water table			Ponding			Flooding	
			Upper limit	Lower limit	Kind of water table	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft		Ft				
138A: Shiloh-----	C/D	Jan-Jun Jul-Dec	0.0-1.0 >6.0	>6.0 >6.0	Apparent ---	0.0-1.0 ---	Brief ---	Frequent ---	---	None None
148B: Proctor-----	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
148C2: Proctor-----	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
152A: Drummer-----	B/D	Jan-May Jun-Dec	0.0-1.0 >6.0	>6.0 >6.0	Apparent ---	0.0-0.5 ---	Brief ---	Frequent ---	---	None None
153A: Pella-----	B	Jan-May Jun-Dec	0.0-1.0 >6.0	>6.0 >6.0	Apparent ---	0.0-0.5 ---	Brief ---	Frequent ---	---	None None
154A: Flanagan-----	B	Jan-May Jun-Dec	1.0-2.0 >6.0	>6.0 >6.0	Apparent ---	---	---	None None	---	None None
171B: Catlin-----	B	Jan Feb-Apr May-Dec	>6.0 2.0-3.5 >6.0	>6.0 3.7-5.4 >6.0	--- Perched ---	--- --- ---	--- --- ---	None None None	---	None None None
198A: Elburn-----	B	Jan-May Jun-Dec	1.0-2.0 >6.0	>6.0 >6.0	Apparent ---	---	---	None None	---	None None
199A: Plano-----	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
199B: Plano-----	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
199C2: Plano-----	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
206A: Thorpe-----	C/D	Jan-May Jun-Dec	0.0-1.0 >6.0	>6.0 >6.0	Apparent ---	0.0-0.5 ---	Brief ---	Frequent None	---	None None
233B: Birkbeck-----	B	Jan Feb-Apr May-Dec	>6.0 2.0-3.5 >6.0	>6.0 3.3-5.8 >6.0	--- Perched ---	--- --- ---	--- --- ---	None None None	---	None None None
234A: Sunbury-----	B	Jan-May Jun-Dec	1.0-2.0 >6.0	>6.0 >6.0	Apparent ---	---	---	None None	---	None None
236A: Sabina-----	B	Jan-May Jun-Dec	1.0-2.0 >6.0	3.3-5.0 >6.0	Perched ---	---	---	None None	---	None None
244A: Hartsburg-----	B/D	Jan-May Jun-Dec	0.0-1.0 >6.0	>6.0 >6.0	Apparent ---	0.0-0.5 ---	Brief ---	Frequent ---	---	None None

Soil Survey of Macon County, Illinois

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Months	Water table			Ponding			Flooding	
			Upper limit	Lower limit	Kind of water table	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft		Ft				
257A: Clarksdale-----	C	Jan-May Jun-Dec	0.5-2.0 >6.0	>6.0 >6.0	Apparent ---	--- ---	--- ---	None None	--- ---	None None
279B: Rozetta-----	B	Jan Feb-Apr May-Dec	>6.0 4.0-6.0 >6.0	>6.0 >6.0 >6.0	--- Apparent ---	--- --- ---	--- --- ---	None None None	--- --- ---	None None None
291B: Xenia-----	B	Jan-May Jun-Dec	1.5-2.5 >6.0	2.5-5.0 >6.0	Perched ---	--- ---	--- ---	None None	--- ---	None None
322C2: Russell-----	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
330A: Peotone-----	C/D	Jan-Jun Jul-Dec	0.0-1.0 >6.0	>6.0 >6.0	Apparent ---	0.0-1.0 ---	Brief ---	Frequent ---	--- ---	None None
348B: Wingate-----	B	Jan Feb-Apr May-Dec	>6.0 1.5-3.0 >6.0	>6.0 2.4-4.6 >6.0	--- Perched ---	--- --- ---	--- --- ---	None None None	--- --- ---	None None None
481A: Raub-----	B	Jan-May Jun-Dec	1.0-2.0 >6.0	3.3-5.8 >6.0	Perched ---	--- ---	--- ---	None None	--- ---	None None
533: Urban land-----	D	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
618C2: Senachwine-----	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
618D2: Senachwine-----	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
618D3: Senachwine-----	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
618F: Senachwine-----	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
618G: Senachwine-----	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
622B2: Wyanet-----	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
622C2: Wyanet-----	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
675B: Greenbush-----	B	Jan Feb-Apr May-Dec	>6.0 4.0-6.0 >6.0	>6.0 >6.0 >6.0	--- Apparent ---	--- --- ---	--- --- ---	None None None	--- --- ---	None None None
679B: Blackberry-----	B	Jan Feb-Apr May-Dec	>6.0 2.0-3.5 >6.0	>6.0 >6.0 >6.0	--- Apparent ---	--- --- ---	--- --- ---	None None None	--- --- ---	None None None

Soil Survey of Macon County, Illinois

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Months	Water table			Ponding			Flooding	
			Upper limit	Lower limit	Kind of water table	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft		Ft				
684B: Broadwell-----	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
687C2: Penfield-----	B	Jan	>6.0	>6.0	---	---	---	None	---	None
		Feb-Apr	3.5-6.0	>6.0	Apparent	---	---	None	---	None
		May-Dec	>6.0	>6.0	---	---	---	None	---	None
705B: Buckhart-----	B	Jan	>6.0	>6.0	---	---	---	None	---	None
		Feb-Apr	2.0-3.5	>6.0	Apparent	---	---	None	---	None
		May-Dec	>6.0	>6.0	---	---	---	None	---	None
712A: Spaulding-----	B/D	Jan-May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
722A: Drummer-----	B/D	Jan-May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
Milford-----	C/D	Jan-May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
737B: Tama, very deep to sand-----	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
749B: Buckhart, till substratum-----	B	Jan	>6.0	>6.0	---	---	---	None	---	None
		Feb-Apr	2.0-3.5	5.0-6.7	Perched	---	---	None	---	None
		May-Dec	>6.0	>6.0	---	---	---	None	---	None
802B: Orthents, loamy-----	C	Jan	>6.0	>6.0	---	---	---	None	---	None
		Feb-Apr	3.3-6.0	>6.0	Apparent	---	---	None	---	None
		May-Dec	>6.0	>6.0	---	---	---	None	---	None
802D: Orthents, loamy-----	C	Jan	>6.0	>6.0	---	---	---	None	---	None
		Feb-Apr	3.3-6.0	>6.0	Apparent	---	---	None	---	None
		May-Dec	>6.0	>6.0	---	---	---	None	---	None
865. Pits, gravel										
1083A: Wabash, undrained----	D	Jan-Jun	0.0-0.5	>6.0	Apparent	0.0-1.0	Long	Frequent	Long	Frequent
		Jul-Oct	0.0-0.5	>6.0	Apparent	0.0-1.0	Long	Frequent	---	---
		Nov-Dec	0.0-0.5	>6.0	Apparent	0.0-1.0	Long	Frequent	Long	Frequent
1107A: Sawmill, undrained----	D	Jan-Jun	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	Frequent	Long	Frequent
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	---
		Nov-Dec	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	Frequent	Long	Frequent

Soil Survey of Macon County, Illinois

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Months	Water table			Ponding			Flooding	
			Upper limit	Lower limit	Kind of water table	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft		Ft				
3073A: Ross-----	B	Jan	>6.0	>6.0	---	---	---	None	Brief	Frequent
		Feb-Apr	4.0-6.0	>6.0	Apparent	---	---	None	Brief	Frequent
		May-Jun	>6.0	>6.0	---	---	---	None	Brief	Frequent
		Jul-Oct	>6.0	>6.0	---	---	---	None	---	---
		Nov-Dec	>6.0	>6.0	---	---	---	None	Brief	Frequent
3077A: Huntsville-----	B	Jan	>6.0	>6.0	---	---	---	None	Brief	Frequent
		Feb-Apr	4.0-6.0	>6.0	Apparent	---	---	None	Brief	Frequent
		May-Jun	>6.0	>6.0	---	---	---	None	Brief	Frequent
		Jul-Oct	>6.0	>6.0	---	---	---	None	---	---
		Nov-Dec	>6.0	>6.0	---	---	---	None	Brief	Frequent
3083A: Wabash-----	D	Jan-Jun	0.0-1.0	>6.0	Apparent	0.0-1.0	Brief	Frequent	Brief	Frequent
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	---
		Nov-Dec	>6.0	>6.0	---	---	---	---	Brief	Frequent
3107A: Sawmill-----	B/D	Jan-May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	Brief	Frequent
		Jun	>6.0	>6.0	---	---	---	---	Brief	Frequent
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	---
		Nov-Dec	>6.0	>6.0	---	---	---	---	Brief	Frequent
3284A: Tice-----	B	Jan-May	1.0-2.0	>6.0	Apparent	---	---	None	Brief	Frequent
		Jun	>6.0	>6.0	---	---	---	None	Brief	Frequent
		Jul-Oct	>6.0	>6.0	---	---	---	None	---	---
		Nov-Dec	>6.0	>6.0	---	---	---	None	Brief	Frequent
3333A: Wakeland-----	C	Jan-May	0.5-2.0	>6.0	Apparent	---	---	None	Brief	Frequent
		Jun	>6.0	>6.0	---	---	---	None	Brief	Frequent
		Jul-Oct	>6.0	>6.0	---	---	---	None	---	---
		Nov-Dec	>6.0	>6.0	---	---	---	None	Brief	Frequent
3352A: Palms-----	A/D	Jan-Jun	0.0-0.5	>6.0	Apparent	0.0-1.0	Long	Frequent	Brief	Frequent
		Jul-Oct	0.0-0.5	>6.0	Apparent	0.0-1.0	Long	Frequent	---	---
		Nov-Dec	0.0-0.5	>6.0	Apparent	0.0-1.0	Long	Frequent	Brief	Frequent
3451A: Lawson-----	B	Jan-May	1.0-3.0	>6.0	Apparent	---	---	None	Brief	Frequent
		Jun	>6.0	>6.0	---	---	---	None	Brief	Frequent
		Jul-Oct	>6.0	>6.0	---	---	---	None	---	---
		Nov-Dec	>6.0	>6.0	---	---	---	None	Brief	Frequent
7134B: Camden, rarely flooded	B	Jan-Jun	>6.0	>6.0	---	---	---	None	Very brief	Rare
		Jul-Oct	>6.0	>6.0	---	---	---	None	---	---
		Nov-Dec	>6.0	>6.0	---	---	---	None	Very brief	Rare
7136A: Brooklyn, rarely flooded-----	C/D	Jan-May	0.0-1.0	5.0-6.7	Perched	0.0-0.5	Brief	Frequent	Very brief	Rare
		Jun	>6.0	>6.0	---	---	---	---	Very brief	Rare
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	---
		Nov-Dec	>6.0	>6.0	---	---	---	---	Very brief	Rare

Soil Survey of Macon County, Illinois

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Months	Water table			Ponding			Flooding	
			Upper limit	Lower limit	Kind of water table	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft		Ft				
7198A: Elburn-----	B	Jan-May	1.0-2.0	>6.0	Apparent	---	---	None	---	Rare
		Jun	>6.0	>6.0	---	---	---	None	---	Rare
		Jul-Oct	>6.0	>6.0	---	---	---	None	---	---
		Nov-Dec	>6.0	>6.0	---	---	---	None	---	Rare
7199B: Plano-----	B	Jan-Jun	>6.0	>6.0	---	---	---	None	Very brief	Rare
		Jul-Oct	>6.0	>6.0	---	---	---	None	---	---
		Nov-Dec	>6.0	>6.0	---	---	---	None	Very brief	Rare
7802B: Orthents, loamy, rarely flooded-----	C	Jan	>6.0	>6.0	---	---	---	None	Very brief	Rare
		Feb-Apr	3.3-6.0	>6.0	Apparent	---	---	None	Very brief	Rare
		May-Jun	>6.0	>6.0	---	---	---	None	Very brief	Rare
		Jul-Oct	>6.0	>6.0	---	---	---	None	---	---
		Nov-Dec	>6.0	>6.0	---	---	---	None	Very brief	Rare
7865: Pits, gravel-----	A	Jan-Jun	>6.0	>6.0	---	---	---	---	Brief	Rare
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	None
		Nov-Dec	>6.0	>6.0	---	---	---	---	Brief	Rare
8070A: Beaucoup-----	B/D	Jan-May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	Brief	Occasional
		Jun	>6.0	>6.0	---	---	---	---	Brief	Occasional
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	---
		Nov-Dec	>6.0	>6.0	---	---	---	---	Brief	Occasional

Soil Survey of Macon County, Illinois

Table 22.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
43A: Ipava-----	---	---	---	High	High	Moderate
45A: Denny-----	Abrupt textural change	10-24	Noncemented	High	High	Moderate
56B: Dana-----	---	---	---	High	High	Moderate
56B2: Dana-----	---	---	---	High	High	Moderate
56C2: Dana-----	---	---	---	High	High	Moderate
67A: Harpster-----	---	---	---	High	High	Low
68A: Sable-----	---	---	---	High	High	Low
86B: Osco-----	---	---	---	High	Moderate	Moderate
88C: Sparta-----	---	---	---	Low	Low	High
119C2: Elco-----	---	---	---	High	High	Moderate
132A: Starks-----	---	---	---	High	High	High
134B: Camden-----	---	---	---	High	Moderate	Moderate
136A: Brooklyn-----	Abrupt textural change	7-21	Noncemented	High	High	High
138A: Shiloh-----	---	---	---	High	High	Low
148B: Proctor-----	---	---	---	High	Moderate	Moderate
148C2: Proctor-----	---	---	---	High	Moderate	Moderate
152A: Drummer-----	---	---	---	High	High	Moderate
153A: Pella-----	---	---	---	High	High	Low
154A: Flanagan-----	---	---	---	High	High	Moderate

Soil Survey of Macon County, Illinois

Table 22.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
171B: Catlin-----	---	---	---	High	High	Moderate
198A: Elburn-----	---	---	---	High	High	Moderate
199A: Plano-----	---	---	---	High	Moderate	Moderate
199B: Plano-----	---	---	---	High	Moderate	Moderate
199C2: Plano-----	---	---	---	High	Moderate	Moderate
206A: Thorp-----	---	---	---	High	High	Moderate
233B: Birkbeck-----	---	---	---	High	High	High
234A: Sunbury-----	---	---	---	High	High	Moderate
236A: Sabina-----	---	---	---	High	High	High
244A: Hartsburg-----	---	---	---	High	High	Low
257A: Clarksdale-----	---	---	---	High	High	Moderate
279B: Rozetta-----	---	---	---	High	Moderate	High
291B: Xenia-----	Dense material	40-60	Noncemented	High	High	Moderate
322C2: Russell-----	Dense material	40-60	Noncemented	High	Moderate	Moderate
330A: Peotone-----	---	---	---	High	High	Low
348B: Wingate-----	---	---	---	High	High	Moderate
481A: Raub-----	---	---	---	High	High	Moderate
533. Urban land						
618C2: Senachwine-----	---	---	---	Moderate	Moderate	Moderate
618D2: Senachwine-----	---	---	---	Moderate	Moderate	Moderate

Soil Survey of Macon County, Illinois

Table 22.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
618D3: Senachwine-----	---	---	---	Moderate	Moderate	Moderate
618F: Senachwine-----	---	---	---	Moderate	Moderate	Moderate
618G: Senachwine-----	---	---	---	Moderate	Moderate	Moderate
622B2: Wyanet-----	---	---	---	Moderate	Moderate	Moderate
622C2: Wyanet-----	---	---	---	Moderate	Moderate	Moderate
675B: Greenbush-----	---	---	---	High	Moderate	High
679B: Blackberry-----	---	---	---	High	High	Moderate
684B: Broadwell-----	---	---	---	High	Moderate	Moderate
687C2: Penfield-----	---	---	---	Moderate	Moderate	Moderate
705B: Buckhart-----	---	---	---	High	High	Moderate
712A: Spaulding-----	---	---	---	High	High	Low
722A: Drummer-----	---	---	---	High	High	Moderate
Milford-----	---	---	---	High	High	Low
737B: Tama, very deep to sand	Strongly contrasting textural stratification	60-80	---	High	Moderate	Moderate
749B: Buckhart, till substratum-----	---	---	---	High	High	Moderate
802B: Orthents, loamy-----	---	---	---	Moderate	High	Moderate
802D: Orthents, loamy-----	---	---	---	Moderate	High	Moderate
865. Pits, gravel						
1083A: Wabash, undrained-----	---	---	---	High	Moderate	Low
1107A: Sawmill, undrained-----	---	---	---	High	Moderate	Low

Soil Survey of Macon County, Illinois

Table 22.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
3073A: Ross-----	---	---	---	Moderate	Low	Low
3077A: Huntsville-----	---	---	---	High	Low	Moderate
3083A: Wabash-----	---	---	---	High	High	Low
3107A: Sawmill-----	---	---	---	High	High	Low
3284A: Tice-----	---	---	---	High	High	Moderate
3333A: Wakeland-----	---	---	---	High	High	Moderate
3352A: Palms-----	---	---	---	High	Moderate	Moderate
3451A: Lawson-----	---	---	---	High	High	Low
7134B: Camden, rarely flooded	---	---	---	High	Moderate	Moderate
7136A: Brooklyn, rarely flooded-----	Abrupt textural change	7-21	Noncemented	High	High	High
7198A: Elburn-----	---	---	---	High	High	Moderate
7199B: Plano-----	---	---	---	High	Moderate	Moderate
7802B: Orthents, loamy, rarely flooded-----	---	---	---	Moderate	High	Moderate
7865. Pits, gravel						
8070A: Beaucoup-----	---	---	---	High	High	Moderate

Table 23.--Engineering Index Test Data

(MAX means maximum dry density; OPT, optimum moisture; LL, liquid limit; and PI, plasticity index)

Soil name and location	Parent material	Sample number	Horizon	Depth	Moisture density ¹		Percentage passing sieve ²				LL ³	PI ⁴	Classification	
					MAX	OPT	No. 4	No. 10	No. 40	No. 200			AASHTO ⁵	Unified ⁶
				In	lb/ft ³	Pct					Pct			
Birkbeck silt loam, 1,600 feet east and 750 feet south of the northwest corner of sec. 25, T. 17 N., R. 3 E.	Loess over till	80IL115035-1	A	0-4	93	23	100	100	99	97	44	10	A-7 (14)	ML
		80IL115035-2	E	4-9	104	18	100	100	99	97	29	7	A-4 (7)	CL
		80IL115035-5, 6	Bt2, Bt3	24-42	102	20	100	100	100	97	41	22	A-7 (22)	CL
		80IL115035-9	2C	60-67	125	11	97	94	86	66	21	4	A-4	CL-ML
Brooklyn silt loam, 1,200 feet south and 1,600 feet east of the northwest corner of sec. 4, T. 16 N., R. 4 E.	Loess over outwash	80IL115016-1	Ap	0-8	105	16	100	99	97	90	27	5	A-4 (3)	ML
		80IL115016-2	E	8-15	109	17	99	98	95	90	30	8	A-4 (7)	CL
		80IL115016-4	Btg2	20-34	98	23	100	100	99	98	55	30	A-7 (33)	CH
		80IL115016-7	2Cg	56-60	125	10	76	75	60	20	22	5	A-2	CL
Dana silt loam, 1,130 feet north and 75 feet west of the southeast corner of sec. 17, T. 15 N., R. 3 E.	Loess over till	81IL115019-1	Ap	0-10	104	19	100	100	99	90	35	12	A-6 (11)	CL
		81IL115019-3	Bt2	15-22	100	21	100	100	99	92	41	20	A-7 (20)	CL
		81IL115019-5	2Bt4	28-42	110	17	98	95	90	69	39	21	A-6 (13)	CL
		81IL115019-7	2C	49-60	123	12	95	90	85	65	25	10	A-6 (4)	CL
Huntsville silt loam, 1,580 feet west and 1,730 feet north of the southeast corner of sec. 22, T. 16 N., R. 1 W.	Alluvium	81IL115005-1	Ap	0-9	110	16	100	100	100	77	30	10	A-6 (6)	CL
		81IL115005-5	Bt2	33-44	110	16	100	100	100	96	32	14	A-6 (13)	CL

See footnotes at end of table.

Table 23.--Engineering Index Test Data--Continued

Soil name and location	Parent material	Sample number	Horizon	Depth	Moisture density ¹		Percentage passing sieve ²				LL ³	PI ⁴	Classification	
					MAX	OPT	No. 4	No. 10	No. 40	No. 200			AASHTO ⁵	Unified ⁶
				In	lb/ft ³	Pct					Pct			
Plano silt loam, 800 feet north and 20 feet west of the southeast corner of sec. 13, T. 16 N., R. 3 E.	Loess over outwash	81IL115048-1	Ap	0-8	103	19	100	100	96	92	37	13	A-6 (12)	ML
		81IL115048-5	Bt2	23-32	101	22	100	100	100	98	44	20	A-7 (22)	CL
		81IL115048-7	2BC	41-60	118	14	100	100	93	59	24	9	A-4 (3)	CL
Sabina silt loam, 880 feet east and 1,760 feet south of the northwest corner of sec. 25, T. 17 N., R. 3 E.	Loess over till	81IL115009-1	Ap	0-9	107	16	100	100	98	94	27	6	A-4 (5)	CL-ML
		81IL115009-4	Bt2	16-26	97	25	100	100	100	98	56	34	A-7 (38)	CH
		81IL115009-6,7	2BC,2C	54-60	124	12	97	93	87	64	22	7	A-4 (1)	CL-ML
Shiloh silty clay loam, 1,295 feet south and 1,305 feet east of the northwest corner of sec. 11, T. 17 N., R. 1 E.	Mixed loess and colluvium	80IL115040-1	Ap	0-9	96	24	100	100	99	97	50	24	A-7 (27)	CL
		80IL115040-4	Btg2	18-26	99	22	100	100	99	95	51	30	A-7 (32)	CH
Tice silty clay loam, 960 feet east and 325 feet south of the center of sec. 22, T. 16 N., R. 1 W.	Alluvium	80IL115046-1	Ap	0-6	101	21	100	100	100	97	45	22	A-7 (24)	CL
		80IL115046-4	Bw2	34-46	105	20	100	100	99	95	42	22	A-7 (23)	CL

See footnotes at end of table.

Table 23.--Engineering Index Test Data--Continued

Soil name and location	Parent material	Sample number	Horizon	Depth	Moisture density ¹		Percentage passing sieve ²				LL ³	PI ⁴	Classification	
					MAX	OPT	No. 4	No. 10	No. 40	No. 200			AASHTO ⁵	Unified ⁶
				In	lb/ft ³	Pct					Pct			
Xenia silt loam, 1,900 feet west and 300 feet south of the northeast corner of sec. 16, T. 17 N., R. 4 E.	Loess over till	81IL115036-1,2	A,E	0-8	106	17	100	100	99	94	28	3	A-4 (3)	ML
		81IL115036-4,5	Bt2,Bt3	11-28	104	20	100	100	99	95	38	8	A-6 (18)	CL
		81IL115036-6	2Bt4	28-36	113	15	95	92	85	63	29	15	A-6 (6)	CL
		81IL115036-8	2C	50-58	126	11	95	90	82	58	21	7	A-4 (1)	CL-ML
Xenia silt loam, 2,060 feet north and 600 feet west of the center of sec. 1, T. 15 N., R. 2 E.	Loess over till	81IL115049-1	Ap	0-6	102	18	100	100	97	93	32	3	A-4 (4)	ML
		81IL115049-4,5	Bt2,Bt3	15-28	102	21	100	100	99	97	43	22	A-7 (23)	CL
		81IL115049-6	2Bt4	28-42	110	16	98	95	91	70	38	22	A-6 (13)	CL
		81IL115049-8	2C	51-60	121	13	97	94	86	65	26	12	A-6 (5)	CL

¹ Based on AASHTO designation T99, method A.

² Analysis according to AASHTO designation T88. Results by this procedure frequently differ somewhat from results obtained by the soil survey procedure of the Natural Resources Conservation Service (NRCS).

³ Based on AASHTO designation T89.

⁴ Based on AASHTO designations T90-56 and T91-54.

⁵ Based on AASHTO designation M145-49.

⁶ Based on the Unified Soil Classification System.

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SECTIONALIZED
TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36



INDEX TO MAP SHEETS
MACON COUNTY, ILLINOIS

1 0 1 2 3
MILES

1 0 1 2 3 4 5 6
KILOMETERS

SCALE = 1:95000

SOIL LEGEND

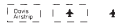


Map unit symbols consist of a combination of numbers and letters. The initial numbers represent the kind of soil or miscellaneous area. An uppercase letter following these numbers indicates the class of slope. A final number of 2 following the slope class letter indicates that the soil is moderately eroded, and a final number of 3 indicates that the soil is severely eroded. Symbols that do not have a final number of 2 or 3 following a slope class letter indicate map units that are not eroded or are only slightly eroded. Symbols for miscellaneous areas do not have a slope class letter.

SYMBOL	NAME	SYMBOL	NAME
43A	Ipava silt loam, 0 to 2 percent slopes	618D2	Senachwine silt loam, 10 to 18 percent slopes, eroded
45A	Denny silt loam, 0 to 2 percent slopes	618D3	Senachwine clay loam, 10 to 18 percent slopes, severely eroded
56B	Dana silt loam, 2 to 5 percent slopes	618F	Senachwine silt loam, 18 to 35 percent slopes
56B2	Dana silt loam, 2 to 5 percent slopes, eroded	618G	Senachwine silt loam, 35 to 60 percent slopes
56C2	Dana silty clay loam, 5 to 10 percent slopes, eroded	622B2	Wyanet silt loam, 2 to 5 percent slopes, eroded
67A	Harpster silty clay loam, 0 to 2 percent slopes	622C2	Wyanet silt loam, 5 to 10 percent slopes, eroded
68A	Sable silty clay loam, 0 to 2 percent slopes	675B	Greenbush silt loam, 2 to 5 percent slopes
86B	Osko silt loam, 2 to 5 percent slopes	679B	Blackberry silt loam, 2 to 5 percent slopes
88C	Sparta loamy sand, 5 to 10 percent slopes	684B	Broadwell silt loam, 2 to 5 percent slopes
119C2	Elco silt loam, 5 to 10 percent slopes, eroded	687C2	Penfield loam, 5 to 10 percent slopes, eroded
132A	Starks silt loam, 0 to 2 percent slopes	705B	Buckhart silt loam, 2 to 5 percent slopes
134B	Camden silt loam, 2 to 5 percent slopes	712A	Spaulding silty clay loam, 0 to 2 percent slopes
136A	Brooklyn silt loam, 0 to 2 percent slopes	722A	Drummer-Milford silty clay loams, 0 to 2 percent slopes
138A	Shiloh silty clay loam, 0 to 2 percent slopes	737B	Tama silt loam, very deep to sand, 2 to 5 percent slopes
148B	Proctor silt loam, 2 to 5 percent slopes	749B	Buckhart silt loam, till substratum, 2 to 5 percent slopes
148C2	Proctor silt loam, 5 to 10 percent slopes, eroded	802B	Orthents, loamy, undulating
152A	Drummer silty clay loam, 0 to 2 percent slopes	802D	Orthents, loamy, rolling
153A	Pella silty clay loam, 0 to 2 percent slopes	865	Pits, gravel
154A	Flanagan silt loam, 0 to 2 percent slopes	1083A	Wabash silty clay, undrained, 0 to 2 percent slopes, frequently flooded
171B	Catlin silt loam, 2 to 5 percent slopes	1107A	Sawmill silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded
198A	Elburn silt loam, 0 to 2 percent slopes	3073A	Ross silt loam, 0 to 2 percent slopes, frequently flooded
199A	Plano silt loam, 0 to 2 percent slopes	3077A	Huntsville silt loam, 0 to 2 percent slopes, frequently flooded
199B	Plano silt loam, 2 to 5 percent slopes	3083A	Wabash silty clay, 0 to 2 percent slopes, frequently flooded
199C2	Plano silt loam, 5 to 10 percent slopes, eroded	3107A	Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded
206A	Thorp silt loam, 0 to 2 percent slopes	3284A	Tice silty clay loam, 0 to 2 percent slopes, frequently flooded
233B	Birkbeck silt loam, 2 to 5 percent slopes	3333A	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded
234A	Sunbury silt loam, 0 to 2 percent slopes	3352A	Palms silty clay loam, 0 to 2 percent slopes, frequently flooded, overwash
236A	Sabina silt loam, 0 to 2 percent slopes	3451A	Lawson silt loam, 0 to 2 percent slopes, frequently flooded
244A	Hartsburg silty clay loam, 0 to 2 percent slopes	7134B	Camden silt loam, 2 to 5 percent slopes, rarely flooded
257A	Clarksdale silt loam, 0 to 2 percent slopes	7136A	Brooklyn silt loam, 0 to 2 percent slopes, rarely flooded
279B	Rozetta silt loam, 2 to 5 percent slopes	7198A	Elburn silt loam, 0 to 2 percent slopes, rarely flooded
291B	Xenia silt loam, 2 to 5 percent slopes	7199B	Plano silt loam, 2 to 5 percent slopes, rarely flooded
322C2	Russell silt loam, 5 to 10 percent slopes, eroded	7802B	Orthents, loamy, undulating, rarely flooded
330A	Peotone silty clay loam, 0 to 2 percent slopes	7865	Pits, gravel, rarely flooded
348B	Wingate silt loam, 2 to 5 percent slopes	8070A	Beaucoup silty clay loam, 0 to 2 percent slopes, occasionally flooded
481A	Raub silt loam, 0 to 2 percent slopes	M-W	Miscellaneous water
533	Urban land	W	Water
618C2	Senachwine silt loam, 5 to 10 percent slopes, eroded		

CONVENTIONAL AND SPECIAL
SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

National, state, or province	— — — — —
County or parish	————— —
Minor civil division	— — — — —
Reservation (national forest or park, state forest or park)	———— — — —
Land grant	— — — — —
Limit of soil survey (label) and/or denied access area	—————
Field sheet matchline & neatline	—————
Previously Published Survey	———— ———
OTHER BOUNDARY (label)	 +
Airport, airfield	
Cemetery	
City/county park	—————

STATE COORDINATE TICK
1 890 000 FEET








LAND DIVISION CORNER
(section and land grants)

GEOGRAPHIC COORDINATE TICK

TRANSPORTATION

Divided roads	=====
Other roads	—————
Trail	- - - - -

ROAD EMBLEM & DESIGNATIONS

Interstate	 
Federal	 
State	 
County, farm or ranch	

RAILROAD

POWER TRANSMISSION LINE




PIPELINE

FENCE








LEVEES

Without road
With road
With railroad
Single side slope (showing actual feature location)

DAMS

Medium or Small	
LANDFORM FEATURES	
Prominent hill or peak	
Soil Sample Site	

MISCELLANEOUS CULTURAL FEATURES

Farmstead, house (omit in urban areas)	■
Church	✙
School	✎
Other Religion (label)	▲  Mt Carmel
Located object (label)	○  Ranger Station
Tank (label)	●  Petroleum
Lookout Tower	
Oil and/or Natural Gas Wells	
Windmill	
Lighthouse	

HYDROGRAPHIC FEATURES


STREAMS

Perennial, double line	=====
Perennial, single line	—————
Intermittent	Label only
Drainage end	Label only

DRAINAGE AND IRRIGATION

Double-line canal (label)	===== CANAL
Perennial drainage and/or irrigation ditch	Label only
Intermittent drainage and/ or irrigation ditch	Label only

SMALL LAKES, PONDS AND RESERVOIRS

Perennial water	●
Miscellaneous water	◎
Flood pool line	

MISCELLANEOUS WATER FEATURES

Spring	~
Well, artesian	•
Well, irrigation	○

SPECIAL SYMBOLS FOR SOIL
SURVEY AND SSURGO

SOIL DELINEATIONS AND SYMBOLS

LANDFORM FEATURES	
ESCARPMENTS	
Bedrock	
Other than bedrock	~~~~~
Short steep slope
Gully	~~~~~
Depression, closed	◆
Sinkhole	◇

EXCAVATIONS

PITS

Borrow pits	☒
Gravel pit	✕
Mine or quarry	✕
Landfill	⊖

MISCELLANEOUS SURFACE FEATURES

Blowout	∪
Clay spot	✕
Gravelly spot	•••
Lava flow	Λ
Marsh or swamp	≡
Rock outcrop (includes sandstone and shale)	∨
Saline spot	+
Sandy spot	∴
Severely eroded spot	≡
Slide or slip))
Sodic spot	∅
Spoil area	≡
Stony spot	0
Very stony spot	∞
Wet spot	ψ

AD HOC FEATURES

Calcareous spot	✕
Droughty spot	‡

Descriptions of Special Features

Name	Description	Label
Blowout	A small saucer-, cup-, or trough-shaped hollow or depression formed by wind erosion on a preexisting sand deposit. Typically 0.2 acre to 2.0 acres.	BLO
Borrow pit	An open excavation from which soil and underlying material have been removed, usually for construction purposes. Typically 0.2 acre to 2.0 acres.	BPI
Calcareous spot	An area in which the soil contains carbonates in the surface layer. The surface layer of the named soils in the surrounding map unit is noncalcareous. Typically 0.5 acre to 2.0 acres.	CSP
Clay spot	A spot where the surface layer is silty clay or clay in areas where the surface layer of the soils in the surrounding map unit is sandy loam, loam, silt loam, or coarser. Typically 0.2 acre to 2.0 acres.	CLA
Depression, closed	A shallow, saucer-shaped area that is slightly lower on the landscape than the surrounding area and that does not have a natural outlet for surface drainage. Typically 0.2 acre to 2.0 acres.	DEP
Disturbed soil spot	An area in which the soil has been removed and materials redeposited as a result of human activity. Typically 0.25 acre to 2.0 acres.	DSS
Dumps	Areas of nonsoil material that support little or no vegetation. Typically 0.5 acre to 2.0 acres.	DMP
Escarpment, bedrock	A relatively continuous and steep slope or cliff, produced by erosion or faulting, that breaks the general continuity of more gently sloping land surfaces. Exposed material is hard or soft bedrock.	ESB
Escarpment, nonbedrock	A relatively continuous and steep slope or cliff, generally produced by erosion but in some places produced by faulting, that breaks the continuity of more gently sloping land surfaces. Exposed earthy material is nonsoil or very shallow soil.	ESO
Glacial till spot	An exposure of glacial till at the surface of the earth. Typically 0.25 acre to 2.0 acres.	GLA
Gravel pit	An open excavation from which soil and underlying material have been removed and used, without crushing, as a source of sand or gravel. Typically 0.2 acre to 2.0 acres.	GPI
Gravelly spot	A spot where the surface layer has more than 35 percent, by volume, rock fragments that are mostly less than 3 inches in diameter in an area that has less than 15 percent rock fragments. Typically 0.2 acre to 2.0 acres.	GRA

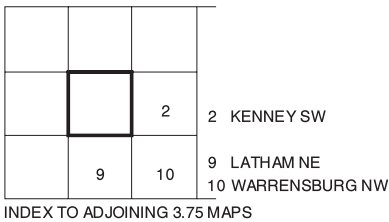
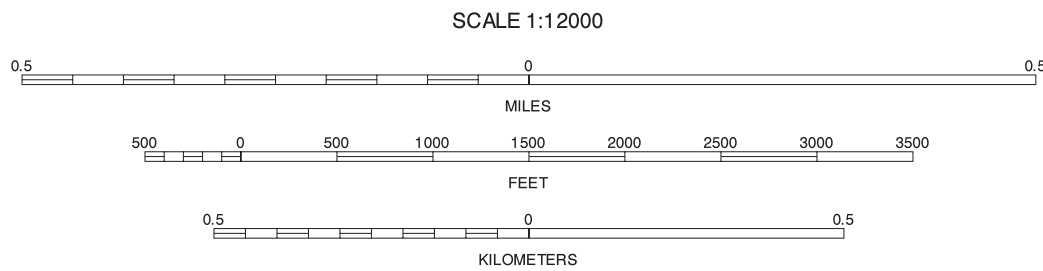
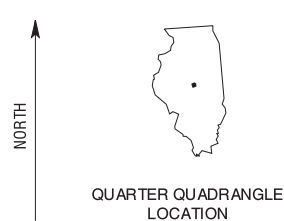
Name	Description	Label
Gray spot	A spot in which the surface layer is gray in areas where the subsurface layer of the named soils in the surrounding map unit are darker. Typically 0.25 acre to 2.0 acres.	GSP
Gully	A small channel with steep sides cut by running water through which water ordinarily runs only after a rain or after melting of snow or ice. It generally is an obstacle to wheeled vehicles and is too deep to be obliterated by ordinary tillage.	GUL
Iron bog	An accumulation of iron in the form of nodules, concretions, or soft masses on the surface or near the surface of soils. Typically 0.2 acre to 2.0 acres.	BFE
Landfill	An area of accumulated waste products of human habitation, either above or below natural ground level. Typically 0.2 acre to 2.0 acres.	LDF
Levee	An embankment that confines or controls water, especially one built along the banks of a river to prevent overflow onto lowlands.	LVS
Marsh or swamp	A water-saturated, very poorly drained area that is intermittently or permanently covered by water. Sedges, cattails, and rushes are the dominant vegetation in marshes, and trees or shrubs are the dominant vegetation in swamps. Typically 0.2 acre to 2.0 acres.	MAR
Mine or quarry	An open excavation from which soil and underlying material have been removed and in which bedrock is exposed. Also denotes surface openings to underground mines. Typically 0.2 acre to 2.0 acres.	MPI
Mine subsided area	An area that is lower than the soils in the surrounding map unit because of subsurface coal mining. Typically 0.25 acre to 3.0 acres.	MSA
Miscellaneous water	A small, constructed body of water that is used for industrial, sanitary, or mining applications and that contains water most of the year. Typically 0.2 acre to 2.0 acres.	MIS
Muck spot	An area that occurs within an area of poorly drained or very poorly drained soil and that has a histic epipedon or an organic surface layer. The symbol is used only in map units consisting of mineral soil. Typically 0.2 acre to 2.0 acres.	MUC
Oil brine spot	An area of soil that has been severely damaged by the accumulation of oil brine, with or without liquid oily wastes. The area is typically barren but may have a vegetative cover of salt-tolerant plants. Typically 0.2 acre to 2.0 acres.	OBS
Perennial water	A small, natural or constructed lake, pond, or pit that contains water most of the year. Typically 0.2 acre to 2.0 acres.	WAT

Name	Description	Label
Rock outcrop	An exposure of bedrock at the surface of the earth. Not used where the named soils of the surrounding map unit are shallow over bedrock or where “Rock outcrop” is a named component of the map unit. Typically 0.2 acre to 2.0 acres.	ROC
Saline spot	An area where the surface layer has an electrical conductivity of 8 mmhos/cm-l more than the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has an electrical conductivity of 2 mmhos/cm-l or less. Typically 0.2 acre to 2.0 acres.	SAL
Sandy spot	A spot where the surface layer is loamy fine sand or coarser in areas where the surface layer of the named soils in the surrounding map unit is very fine sandy loam or finer. Typically 0.2 acre to 2.0 acres.	SAN
Severely eroded spot	An area where, on the average, 75 percent or more of the original surface layer has been lost because of accelerated erosion. Not used in map units in which “severely eroded,” “very severely eroded,” or “gullied” is part of the map unit name. Typically 0.2 acre to 2.0 acres.	ERO
Short steep slope	A narrow area of soil having slopes that are at least two slope classes steeper than the slope class of the surrounding map unit.	SLP
Sinkhole	A closed depression formed either by solution of the surficial rock or by collapse of underlying caves. Typically 0.2 acre to 2.0 acres.	SNK
Slide or slip	A prominent landform scar or ridge caused by fairly recent mass movement or descent of earthy material resulting from failure of earth or rock under shear stress along one or several surfaces. Typically 0.2 acre to 2.0 acres.	SLI
Sodic spot	An area where the surface layer has a sodium adsorption ratio that is at least 10 more than that of the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has a sodium adsorption ratio of 5 or less. Typically 0.2 acre to 2.0 acres.	SOD
Spoil area	A pile of earthy materials, either smoothed or uneven, resulting from human activity. Typically 0.2 acre to 2.0 acres.	SPO
Stony spot	A spot where 0.01 to 0.1 percent of the surface cover is rock fragments that are more than 10 inches in diameter in areas where the surrounding soil has no surface stones. Typically 0.2 acre to 2.0 acres.	STN
Unclassified water	A small, natural or manmade lake, pond, or pit that contains water, of an unspecified nature, most of the year. Typically 0.2 acre to 2.0 acres.	UWT

Name	Description	Label
Very stony spot	A spot where 0.1 to 3.0 percent of the surface cover is rock fragments that are more than 10 inches in diameter in areas where the surface cover of the surrounding soil is less than 0.01 percent stones. Typically 0.2 acre to 2.0 acres.	STV
Wet depression	A shallow, concave area within an area of poorly drained or very poorly drained soils in which water is ponded for intermittent periods. The concave area is saturated for appreciably longer periods of time than the surrounding soil. Typically 0.2 acre to 2.0 acres.	WDP
Wet spot	A somewhat poorly drained to very poorly drained area that is at least two drainage classes wetter than the named soils in the surrounding map unit. Typically 0.2 acres to 2.0 acres.	WET



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1996 - 1999 aerial photography.
North American Datum of 1983 (NAD83), GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

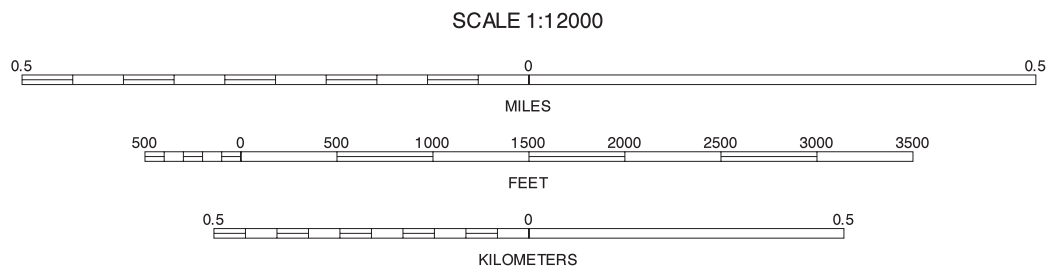
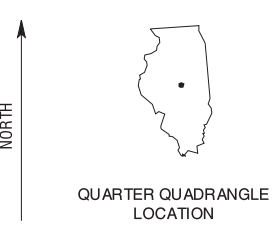


CHESTNUT SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 1 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.



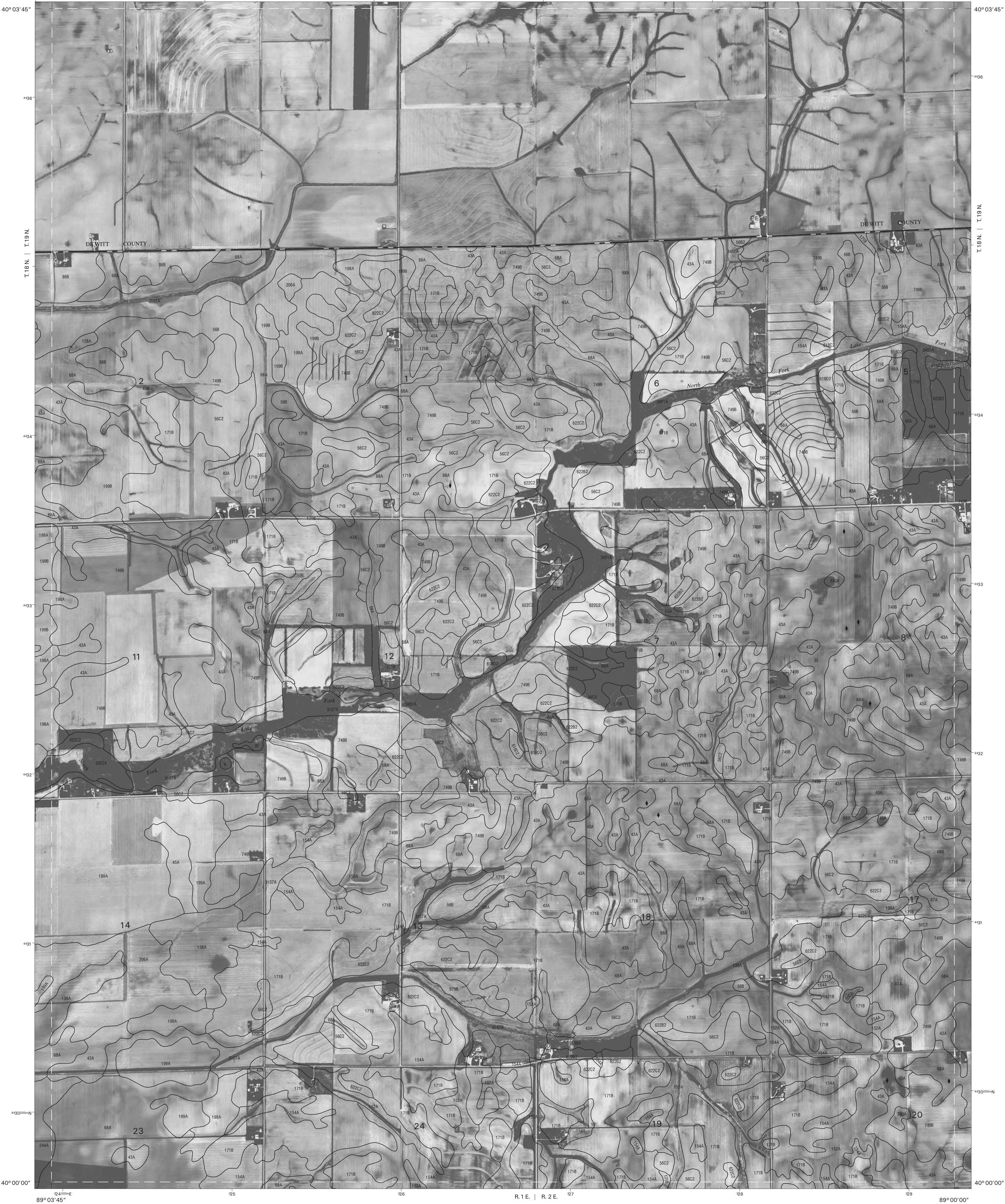
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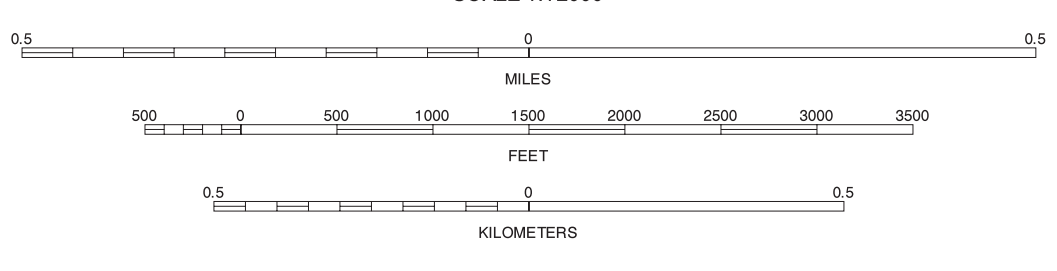
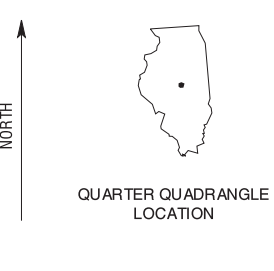
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9	11

KENNEY SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 2 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.



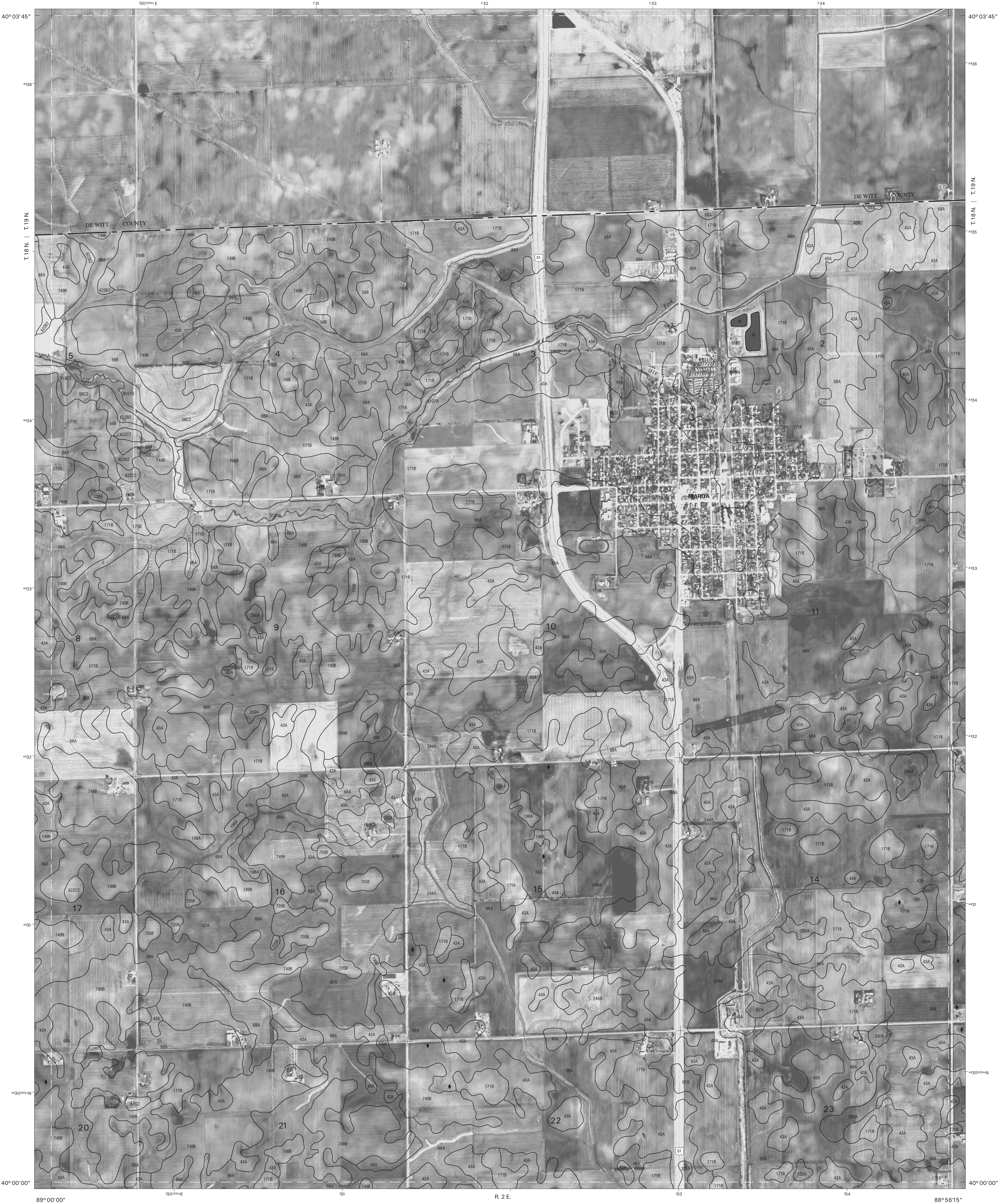
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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks; Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



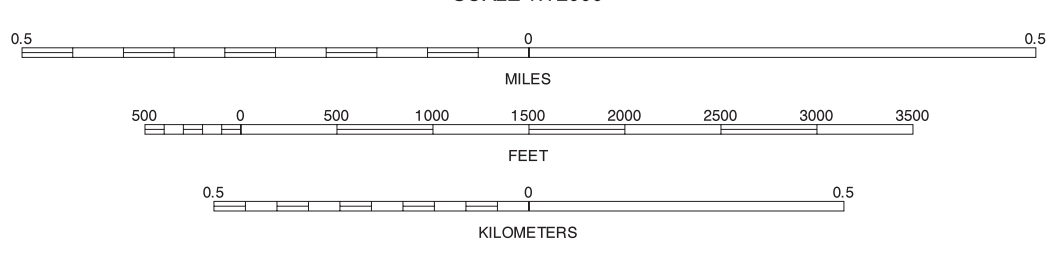
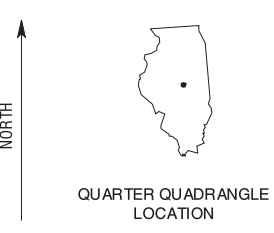
2	4
10	12

2 KENNEY SW
4 MAPOA SW
10 WARRENSBURG NW
11 WARRENSBURG NE
12 FORSYTH NW

KENNEY SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 3 OF 55
Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.



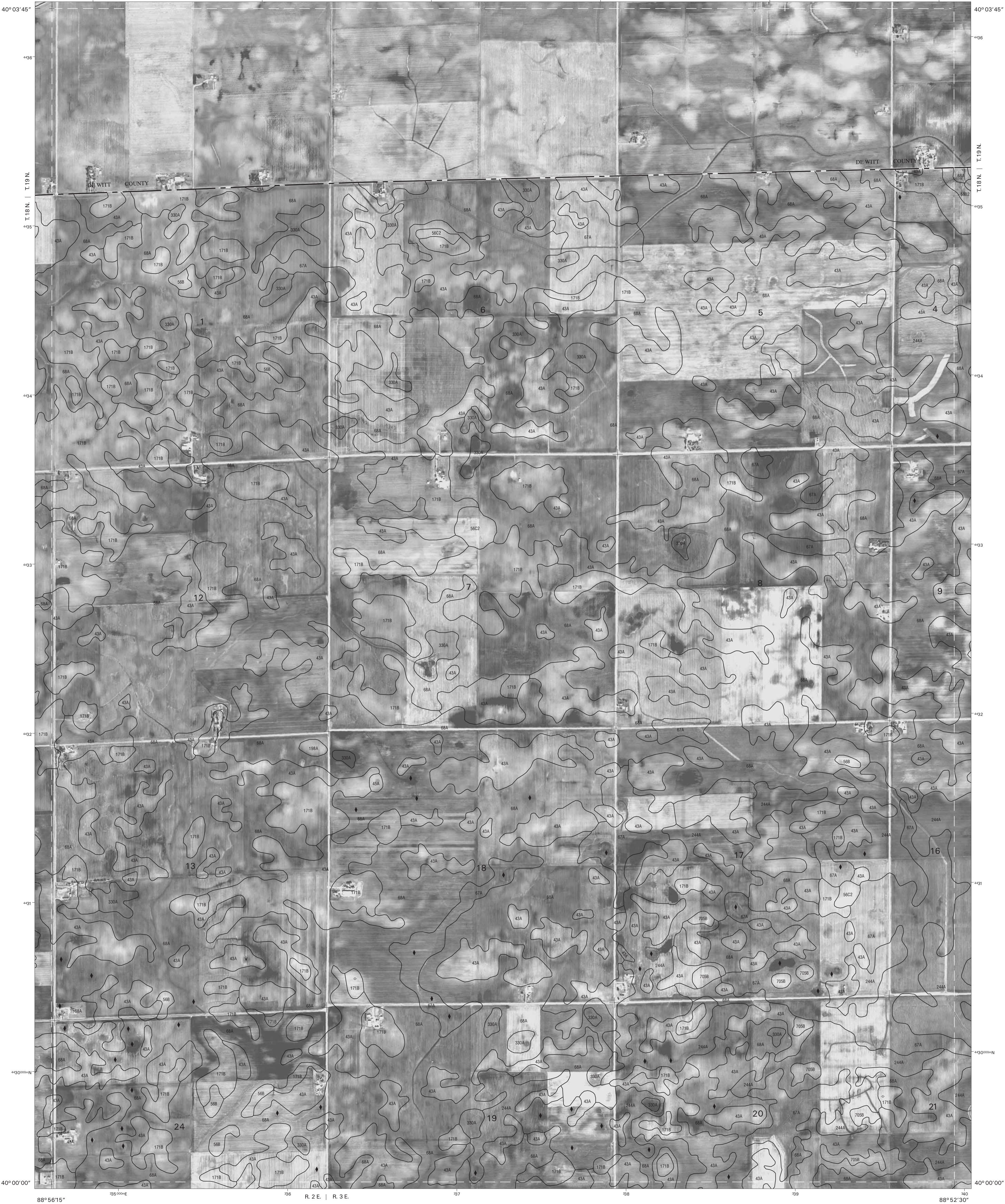
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are or topographic maps prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.
North American Datum of 1983 (NAD83), GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



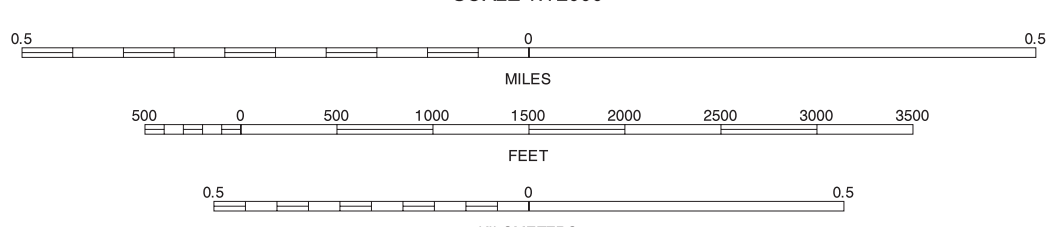
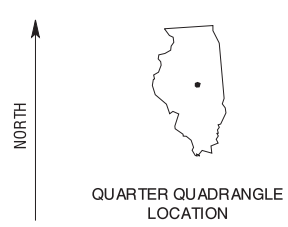
3	5	3 KENNEY SE
11	12	5 MAROA SE
	13	11 WARRENSBURG NE
		12 FORSYTH NW
		13 FORSYTH NE

MAROA SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 4 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.



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Base maps are either photographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.
North American Datum of 1983 (NAD83), GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



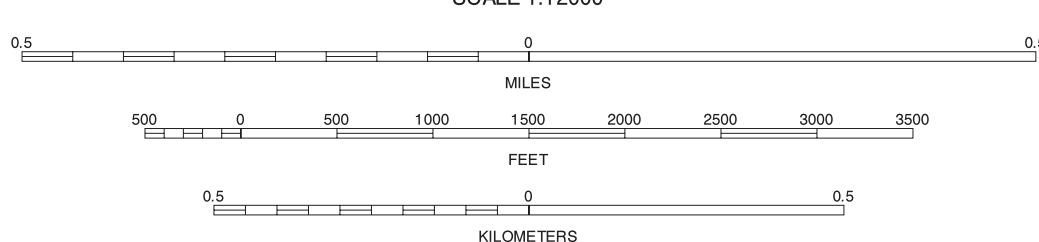
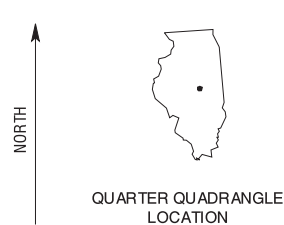
4	6	8
12	13	14

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MAROA SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 5 OF 55
Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.



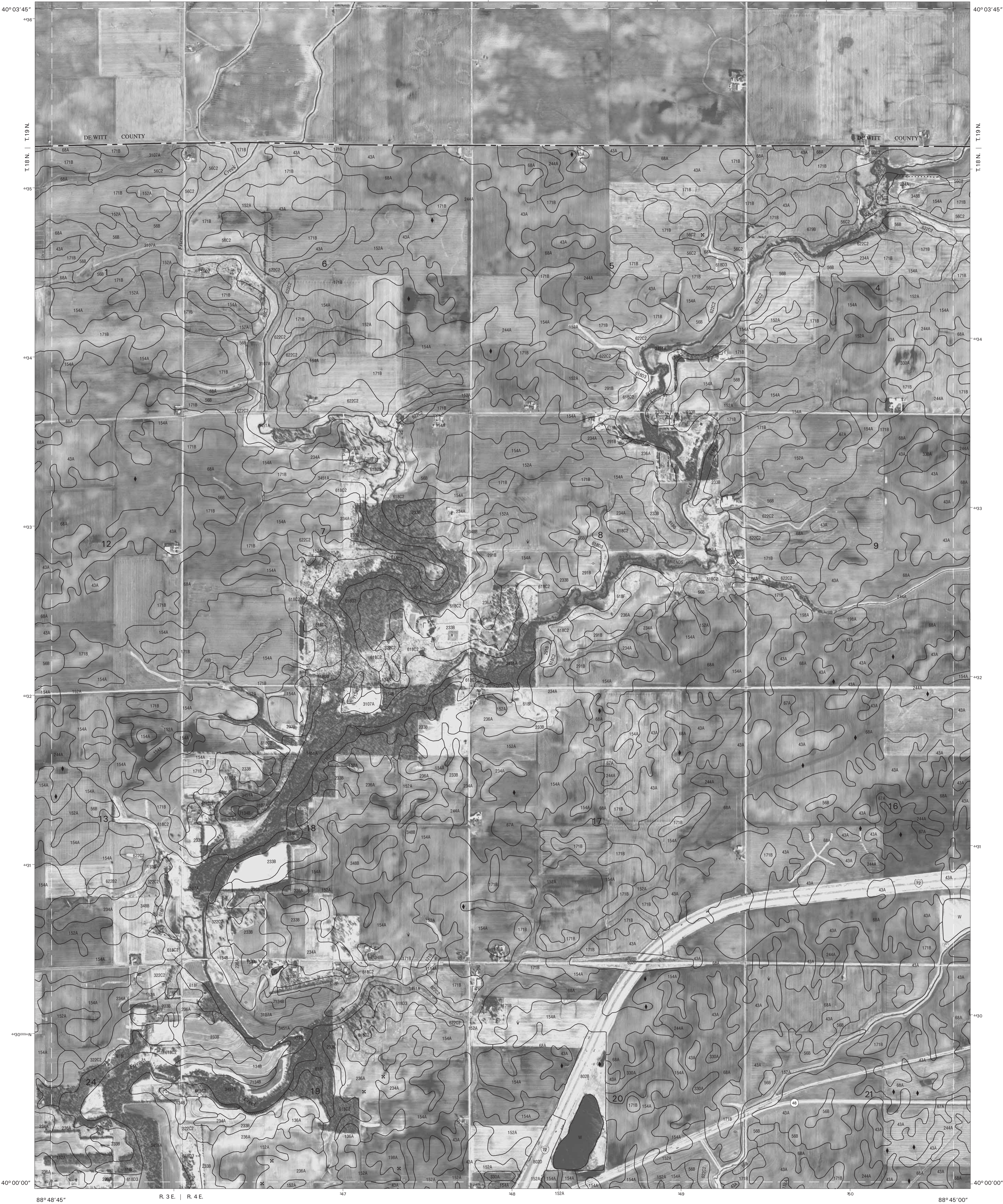
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are or topographic maps prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.
North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



5	7	5 MARCOA SE
		7 WELDON WEST SE
		13 FORTYFIFTH NE
13	14	14 ARGENTA NW
		15 ARGENTA NE

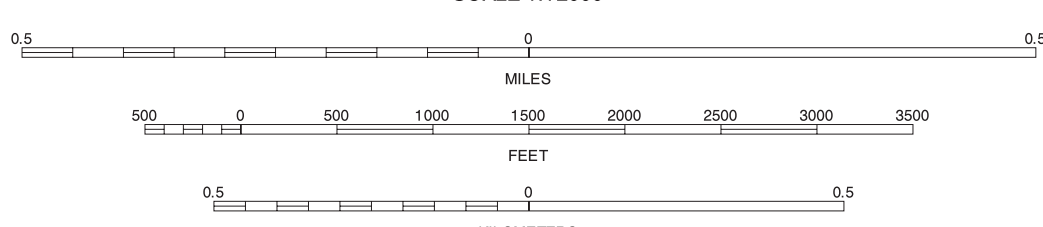
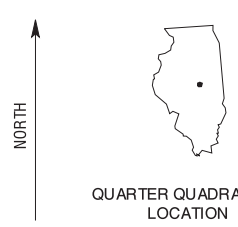
WELDON WEST SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 6 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



6	8	6 WELDON WEST SW 8 WELDON EAST SW 14 ARGENTA NW 15 ARGENTA NE 16 CERRO GORDO NW
14	15	16

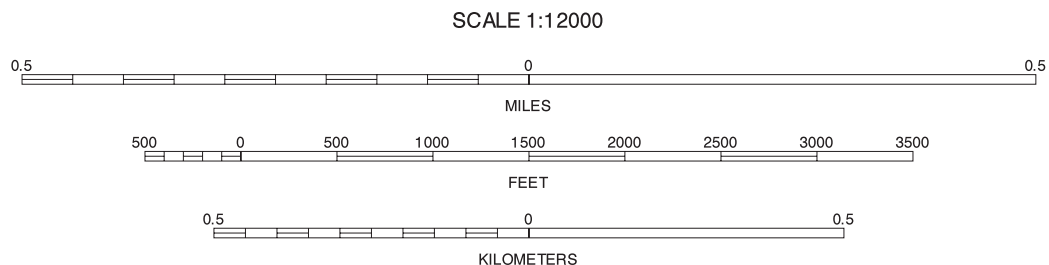
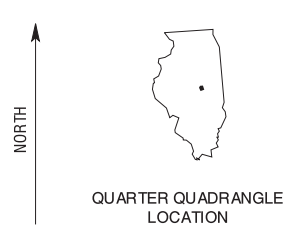
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WELDON WEST SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 7 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.



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Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1996 - 1999 aerial photography.
North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks; Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



7		7 WELDON WEST SE
15	16	15 ARGENTA NE 16 CERRO GORDO NW

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WELDON EAST SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 8 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.



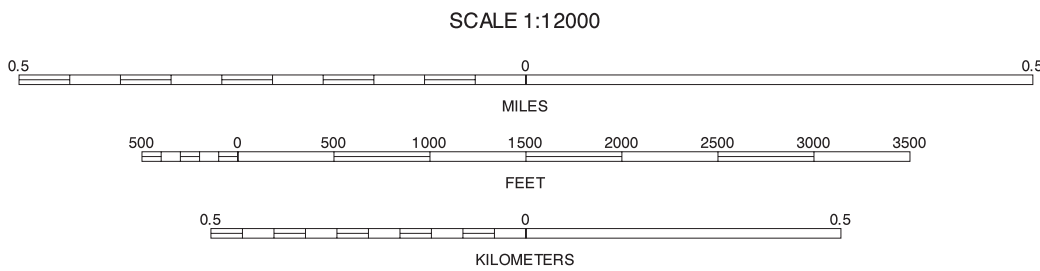
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUARTER QUADRANGLE
LOCATION



1	2	1 CHESTNUT SE 2 KENNEY SW
10	10	10 WARRENSBURG NW 17 LATHAM SW 18 LATHAM SE 19 WARRENSBURG SW
17	18	

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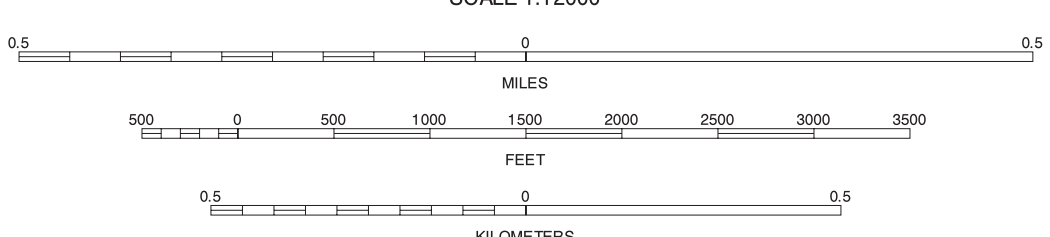
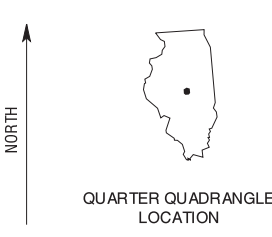
LATHAM NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 9 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



1	2	3	1 CHESTNUT SE
9	10	11	2 KENNEY SW
18	19	20	3 KENNEY SE
			9 LATHAM NE
			11 WARRENSBURG NE
			18 LATHAM SE
			19 WARRENSBURG SW
			20 WARRENSBURG SE

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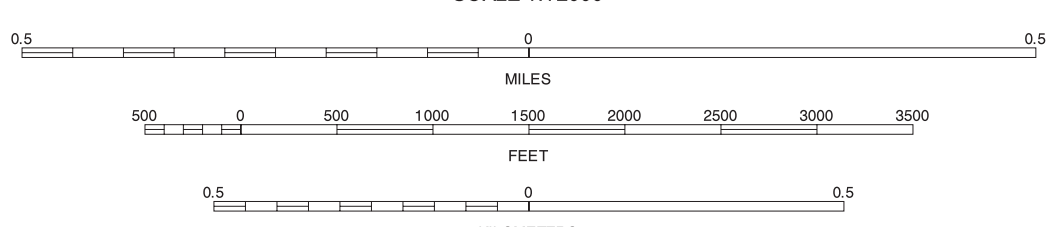
WARRENSBURG NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 10 OF 55

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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

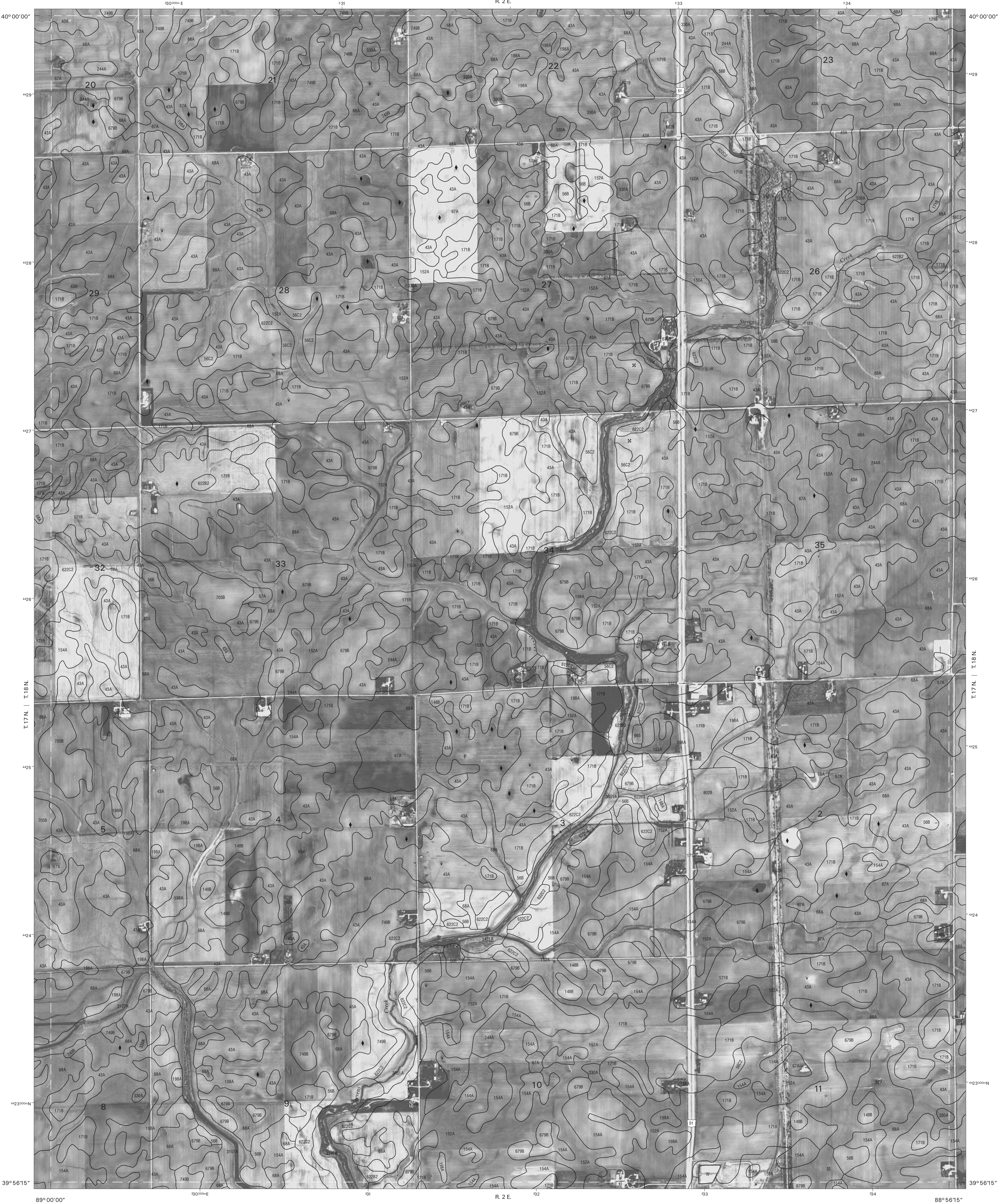


2	3	4	2 KENNEY SW 3 KENNEY SE 4 MARCA SW 10 WARRENSBURG NW 12 FORSYTH NW 19 WARRENSBURG SW 20 WARRENSBURG SE 21 FORSYTH SW
10		12	
19	20	21	

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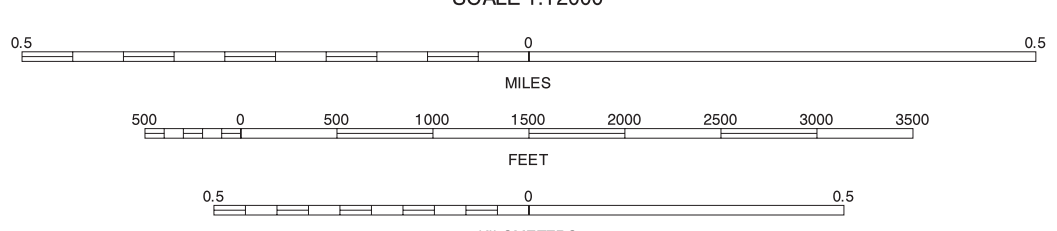
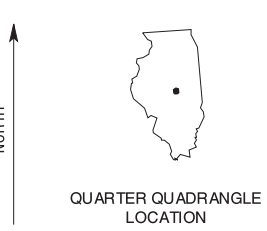
WARRENSBURG NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 11 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

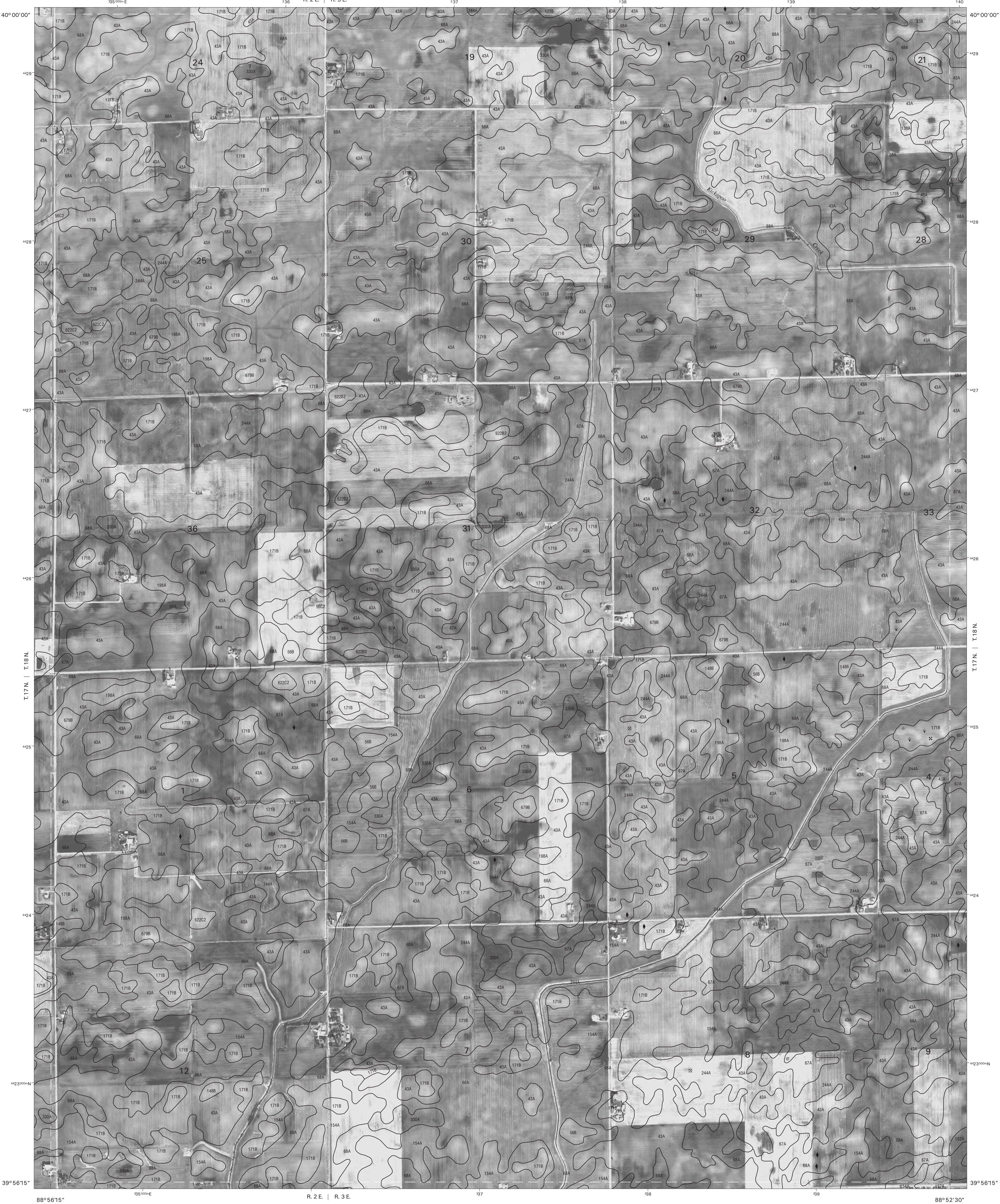


3	4	5	3 KENNEY SE 4 MAROA SW 9 MAROA SE 11 WARRENSBURG NE 13 FORSYTH NE 20 WARRENSBURG SE 21 FORSYTH SW 22 FORSYTH SE
11		13	
20	21	22	

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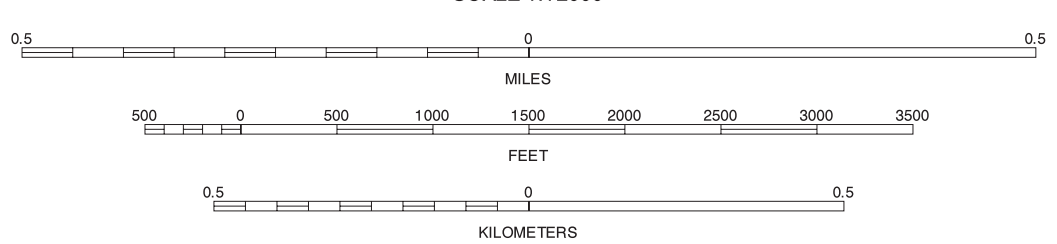
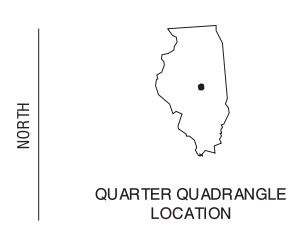
FORSYTH NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 12 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

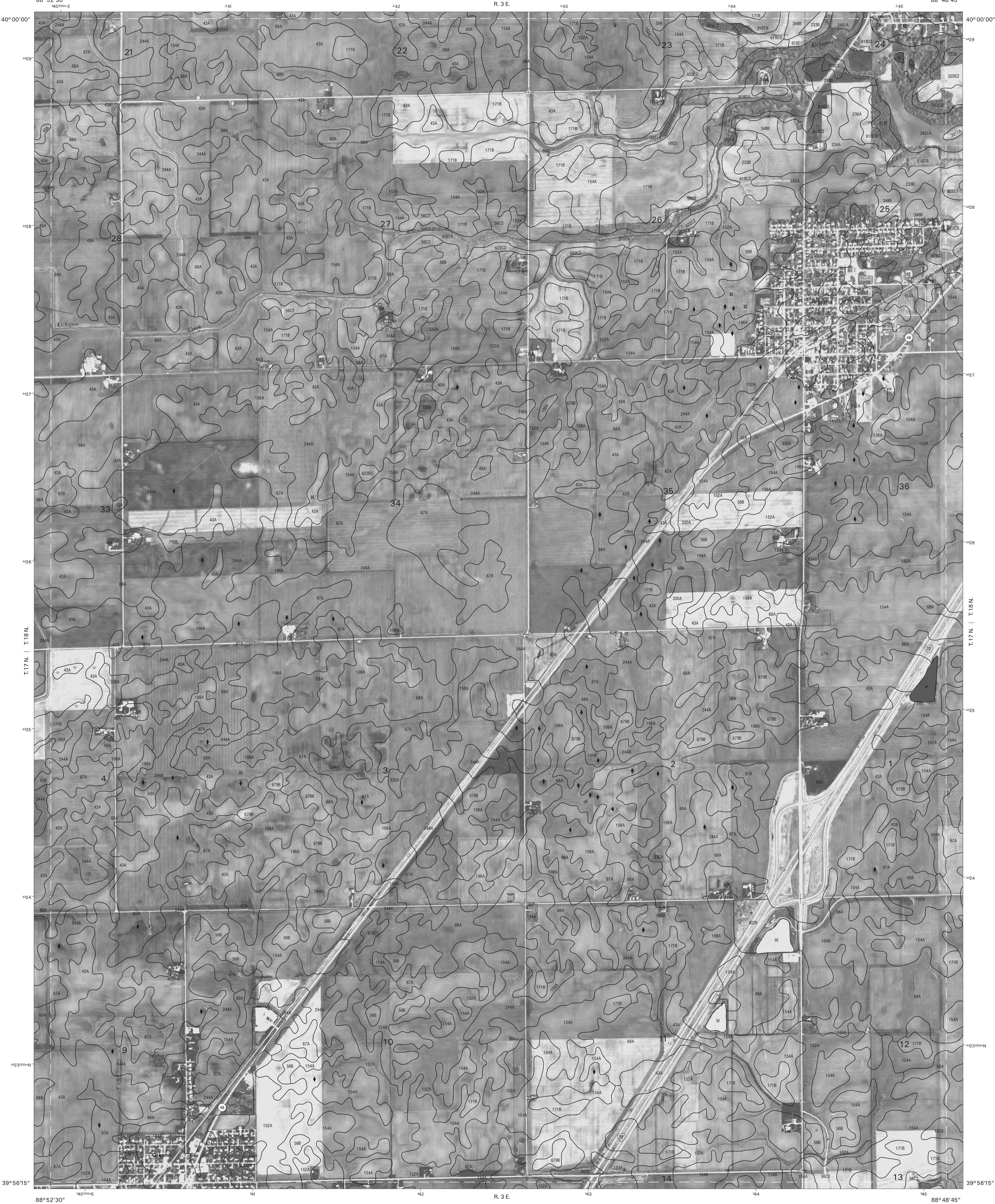


4	5	6	4 MAROA SW 5 MAROA SE 6 WELDON WEST SW 12 FORSYTH NW 14 ARGENTA NW 21 FORSYTH SW 22 FORSYTH SE 23 ARGENTA SW
12		14	
21	22	23	

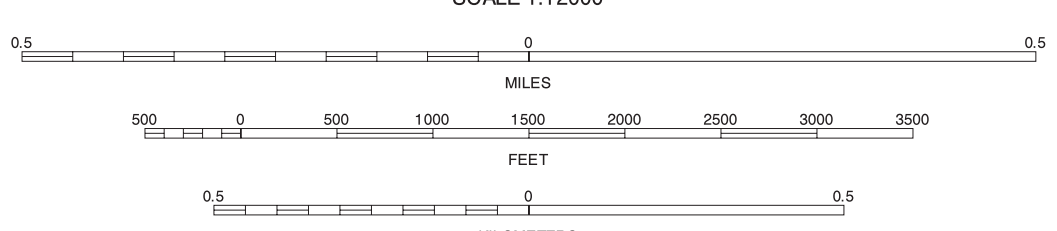
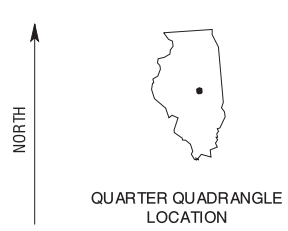
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FORSYTH NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 13 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatine are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



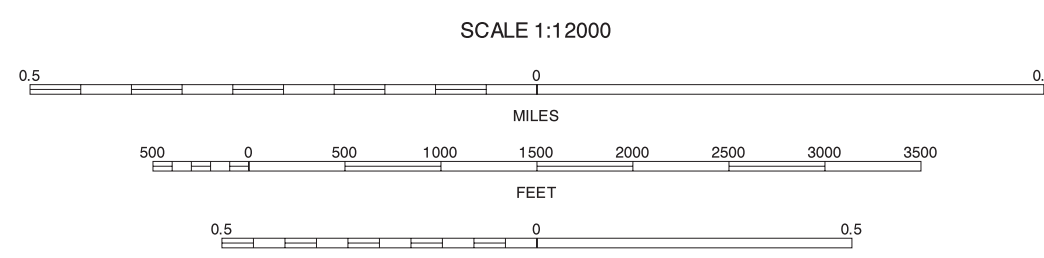
5	6	7	5 MAROASE
			6 WELDON WEST SW
			7 WELDON WEST SE
			13 FORSYTH NE
13		15	15 ARGENTA NE
			22 FORSYTH SE
			23 ARGENTA SW
22	23	24	24 ARGENTA SE

ARGENTA NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 14 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.

R. 3 E. | R. 4 E.

88° 45' 00"

QUARTER QUADRANGLE
LOCATION

6	7	8	6 WELDON WEST SW
			7 WELDON WEST SE
			8 WELDON EAST SW
14		16	14 ARGENTA NW
			16 CERRO GORDO NW
			23 ARGENTA SW
23	24	25	24 ARGENTA SE
			25 CERRO GORDO SW

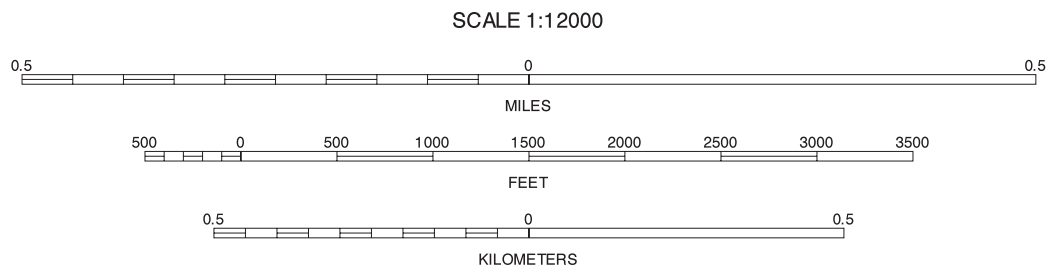
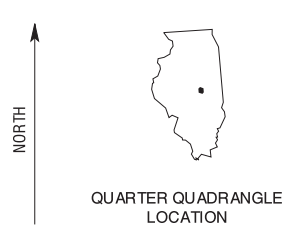
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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



7	8	7 WELDON WEST SE 8 WELDON EAST SW
15		15 ARGENTA NE
24	25	24 ARGENTA SE 25 CERRO GORDO SW

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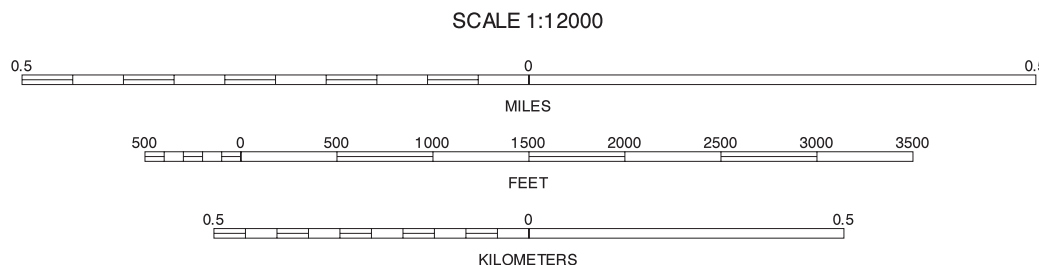
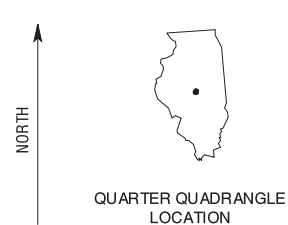
CERRO GORDO NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 16 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 18. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



		9
	18	9 LATHAM NE 18 LATHAM SE
26	27	26 NIANTIC NW 27 NIANTIC NE

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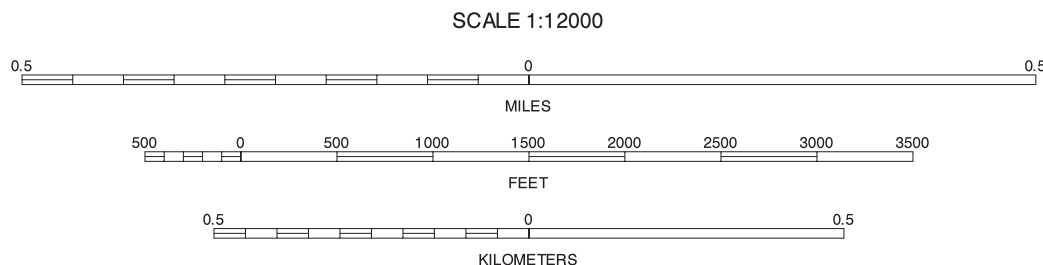
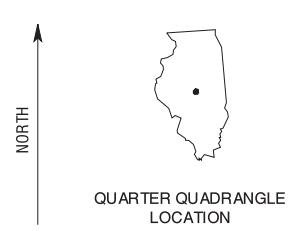
LATHAM SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 17 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

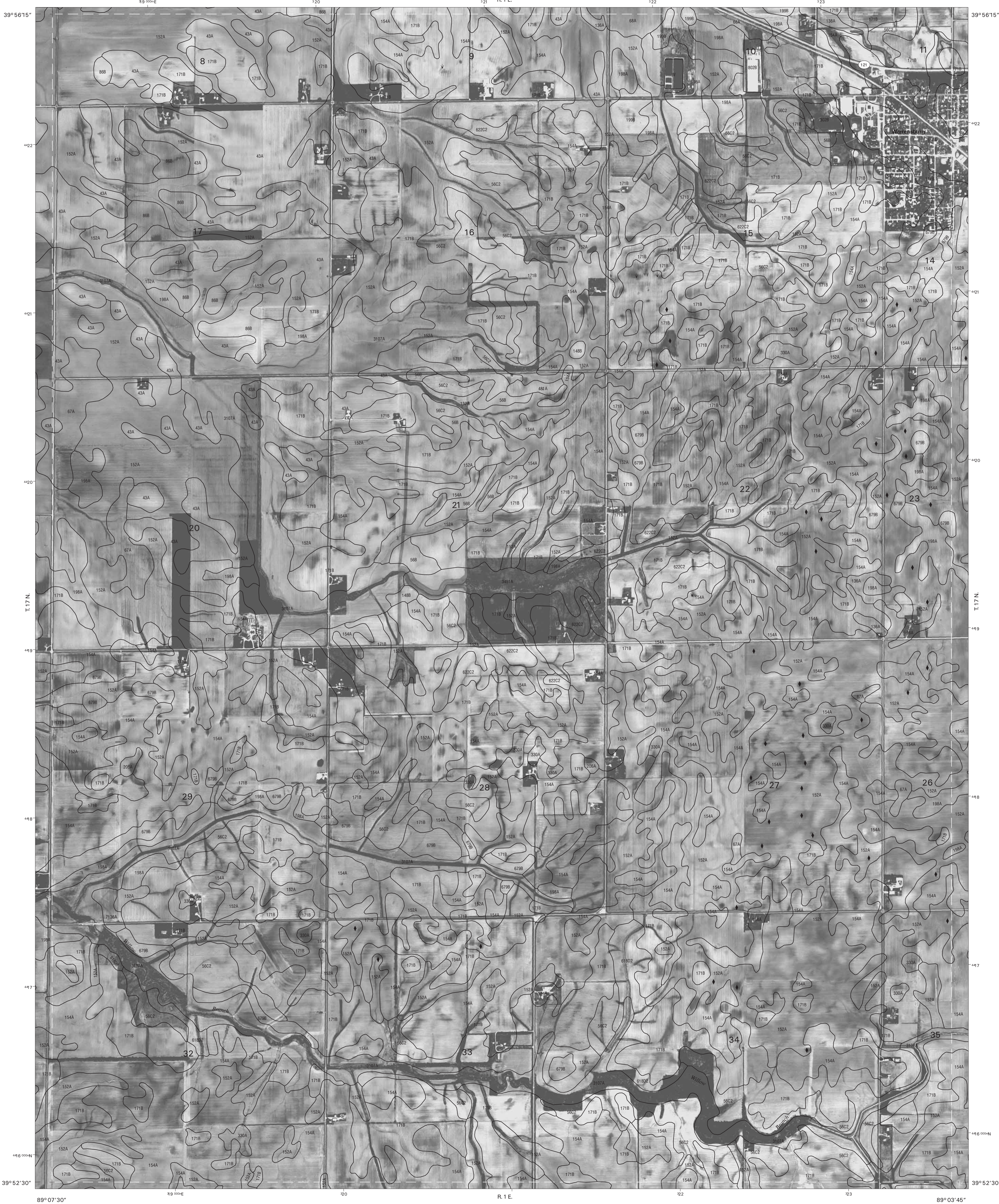


	9	10
17	18	19
26	27	28

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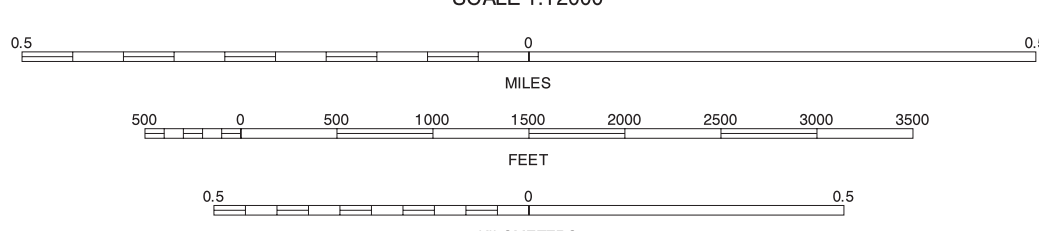
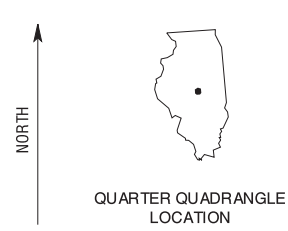
LATHAM SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 18 OF 55

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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

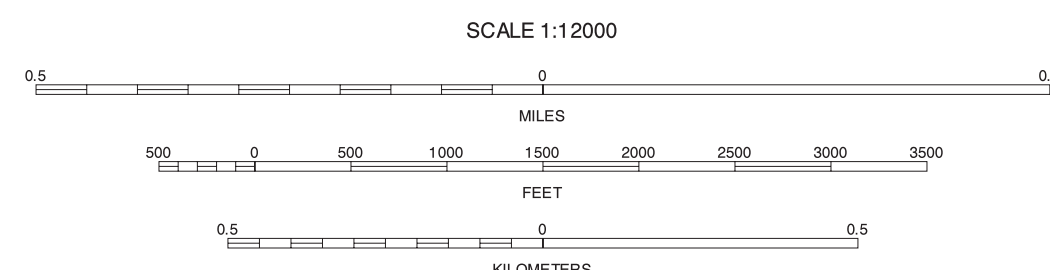
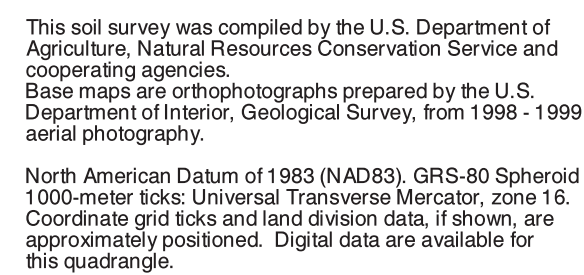


9	10	11	9 LATHAM NE 10 WARRENSBURG NW 11 WARRENSBURG NE 18 LATHAM SE 20 WARRENSBURG SE 27 HARRISTOWN NE 28 HARRISTOWN NW 29 HARRISTOWN NE
18		20	
27	28	29	

WARRENSBURG SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 19 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.

MACON COUNTY, ILLINOIS
WARRENSBURG SE QUADRANGLE
SHEET NUMBER 20 OF 55
89° 00' 00"



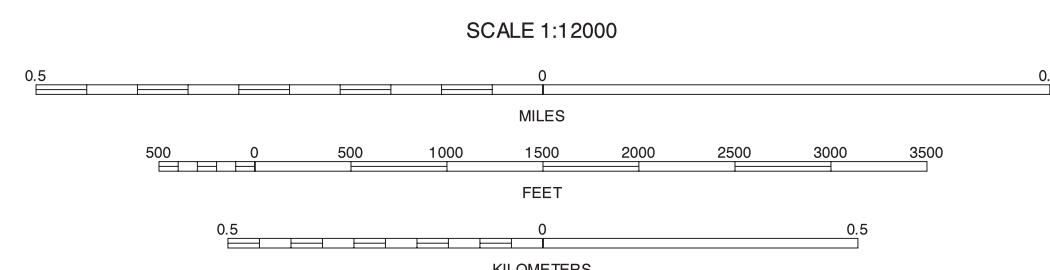
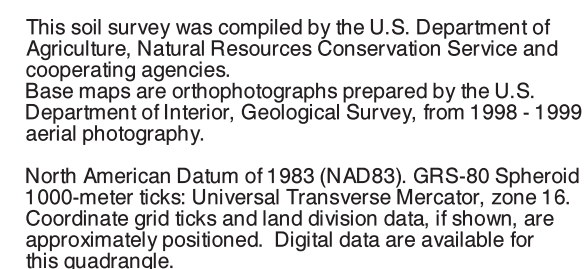
10	11	12	10 WARRENSBURG NW
			11 WARRENSBURG NE
			12 FORSYTH NW
19		21	19 WARRENSBURG SW
			21 FORSYTH SW
			28 HARRISTOWN NW
28	29	30	29 HARRISTOWN NE
			30 DECATUR NW

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WARRENSBURG SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 20 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

MACON COUNTY, ILLINOIS
FORSYTH SW QUADRANGLE
SHEET NUMBER 21 OF 55
88°56'15"

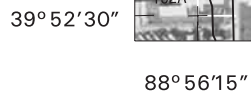


11	12	13	11 WARRENSBURG NE
			12 FORSYTH NW
20		22	13 FORSYTH NE
			20 WARRENSBURG SE
			22 FORSYTH SE
29	30	31	29 HARRISTOWN NE
			30 DECATUR NW
			31 DECATUR NE

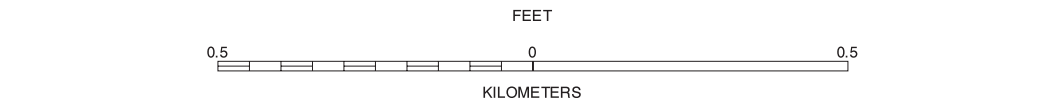
INDEX TO ADJOINING 3.75 MAPS

FORSYTH SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 21 OF 55

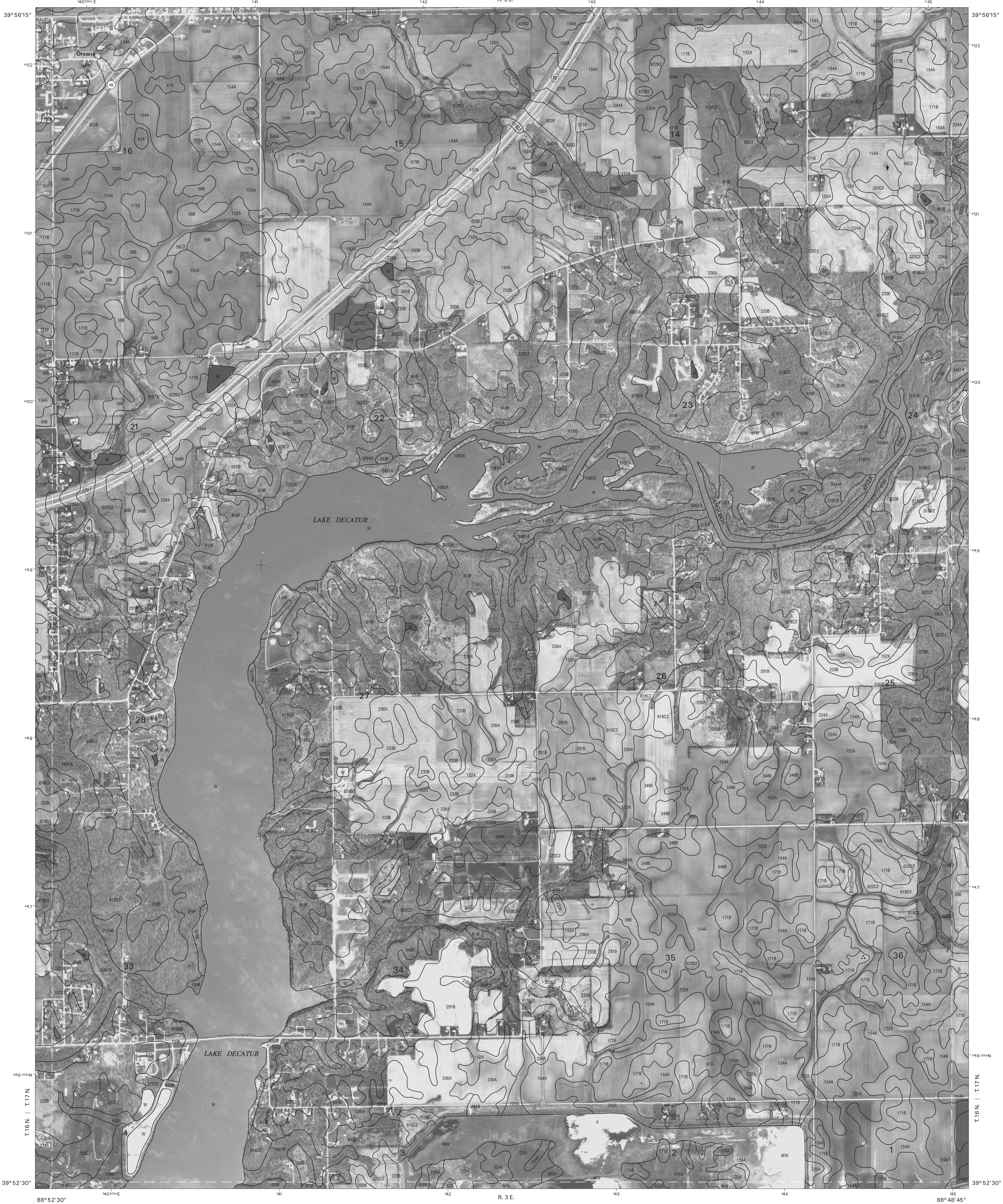
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are
approximately positioned. Digital data are available for
this quadrangle.

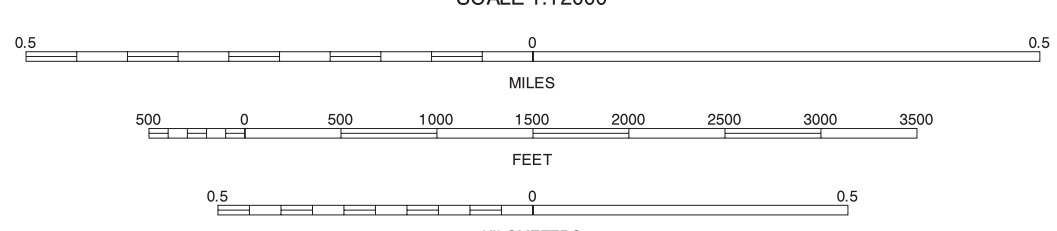
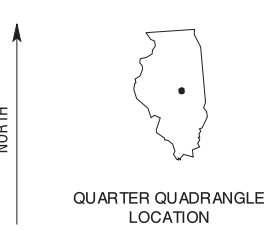
INDEX TO ADJOINING 3.75 MAPS

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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



13	14	15	13 FORSYTH NE 14 ARGENTA NW 15 ARGENTA NE 22 FORSYTH SE 24 ARGENTA SE
22		24	31 DECATUR NE 32 LONG CREEK NW 33 LONG CREEK NE
31	32	33	

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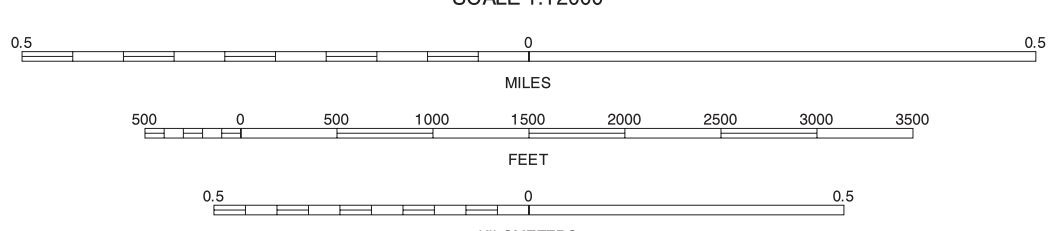
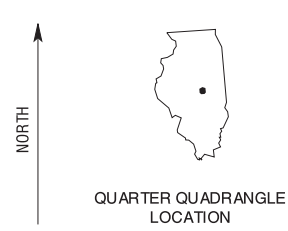
ARGENTA SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 23 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1999-1999 aerial photography.

North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks, Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



14	15	16	14 ARGENTA NW 15 ARGENTA NE 16 CERRO GORDO NW 23 ARGENTA SW 25 CERRO GORDO SW 32 LONG CREEK NW 33 LONG CREEK NE 34 LA PLACE NW
23		25	
32	33	34	

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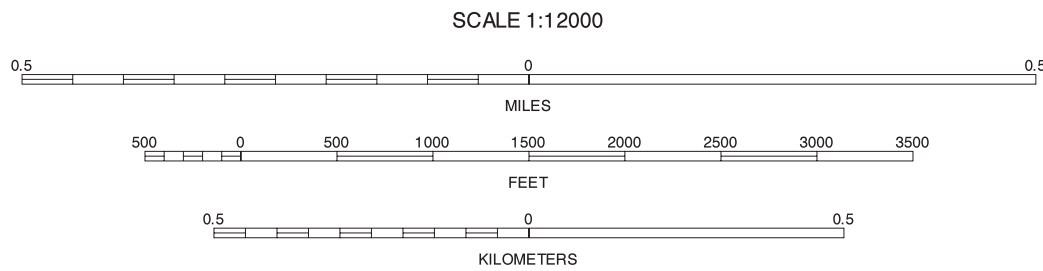
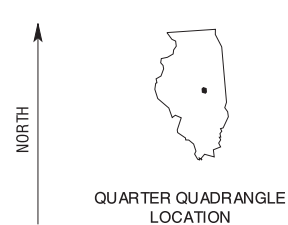
ARGENTA SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 24 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

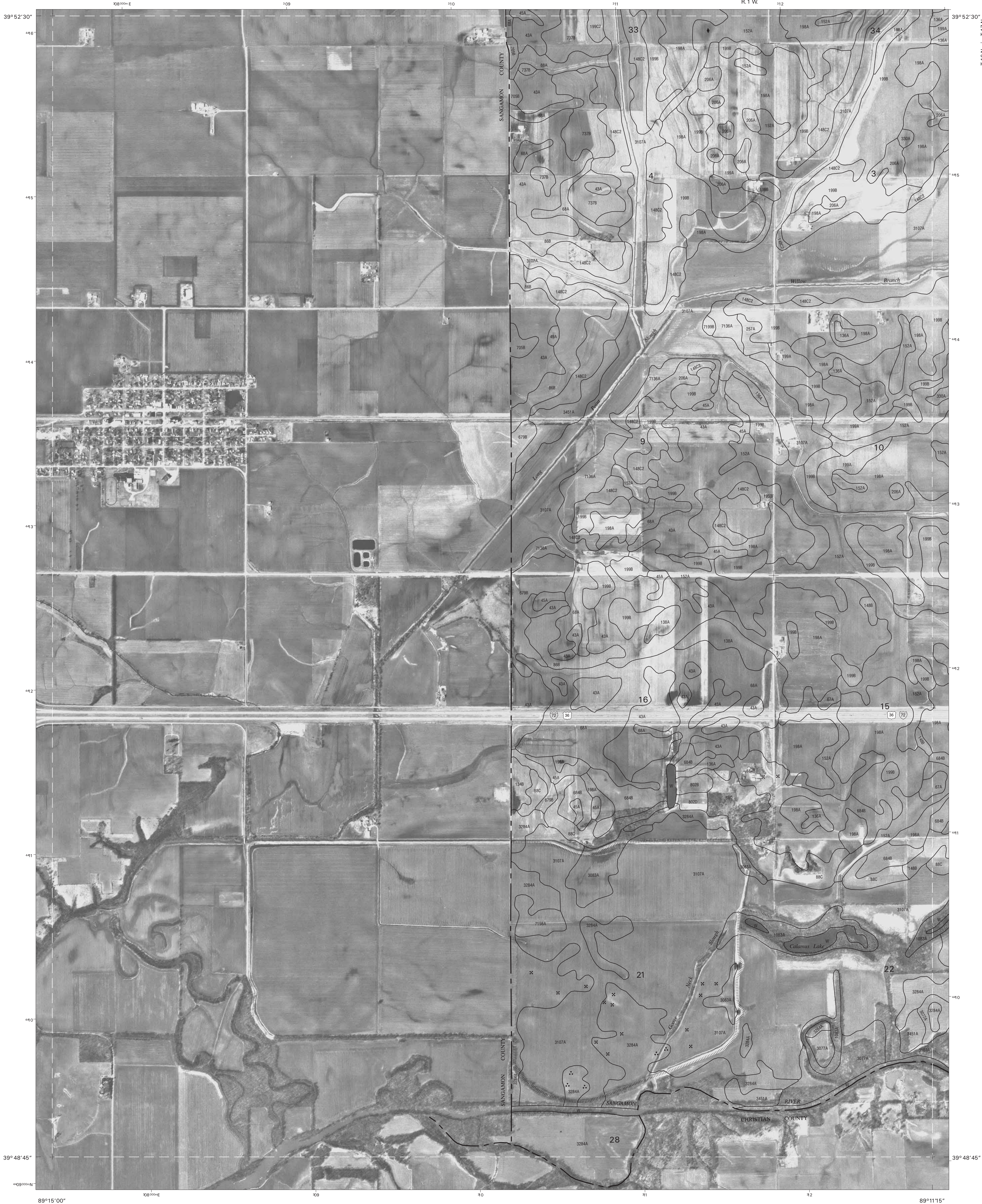


15	16	15 ARGENTA NE 16 CERRO GORDO NW
24		24 ARGENTA SE
33	34	33 LONG CREEK NE 34 LA PLACE NW

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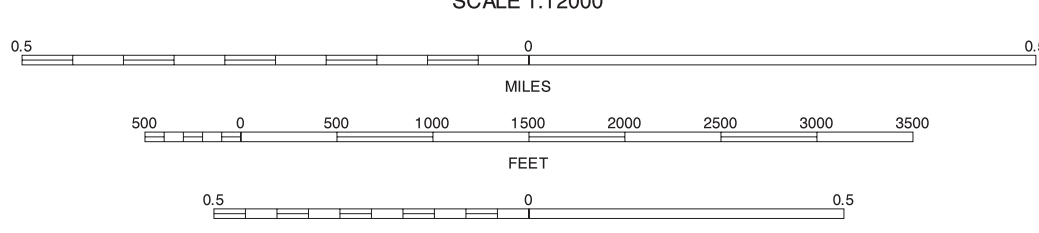
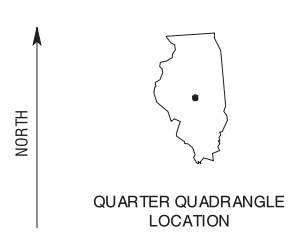
CERRO GORDO SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 25 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



17	18
18	27
35	36

17 LATHAM SW
18 LATHAM SE
27 NIANTIC NE
35 NIANTIC SE
36 NIANTIC SE

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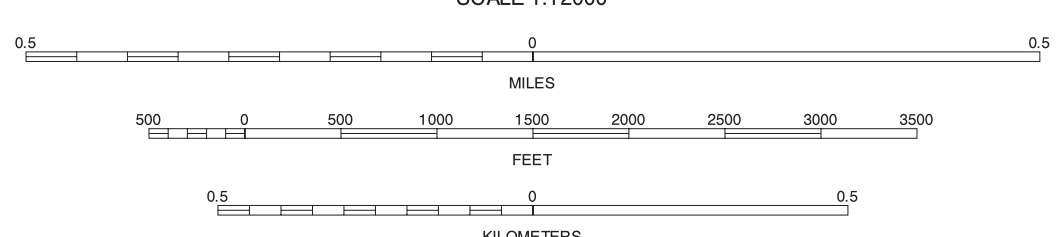
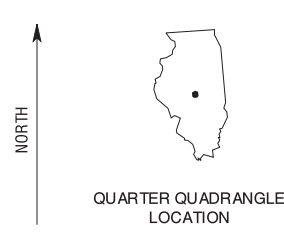
NIANTIC NW, (OVERSIZED) ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 26 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatine are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



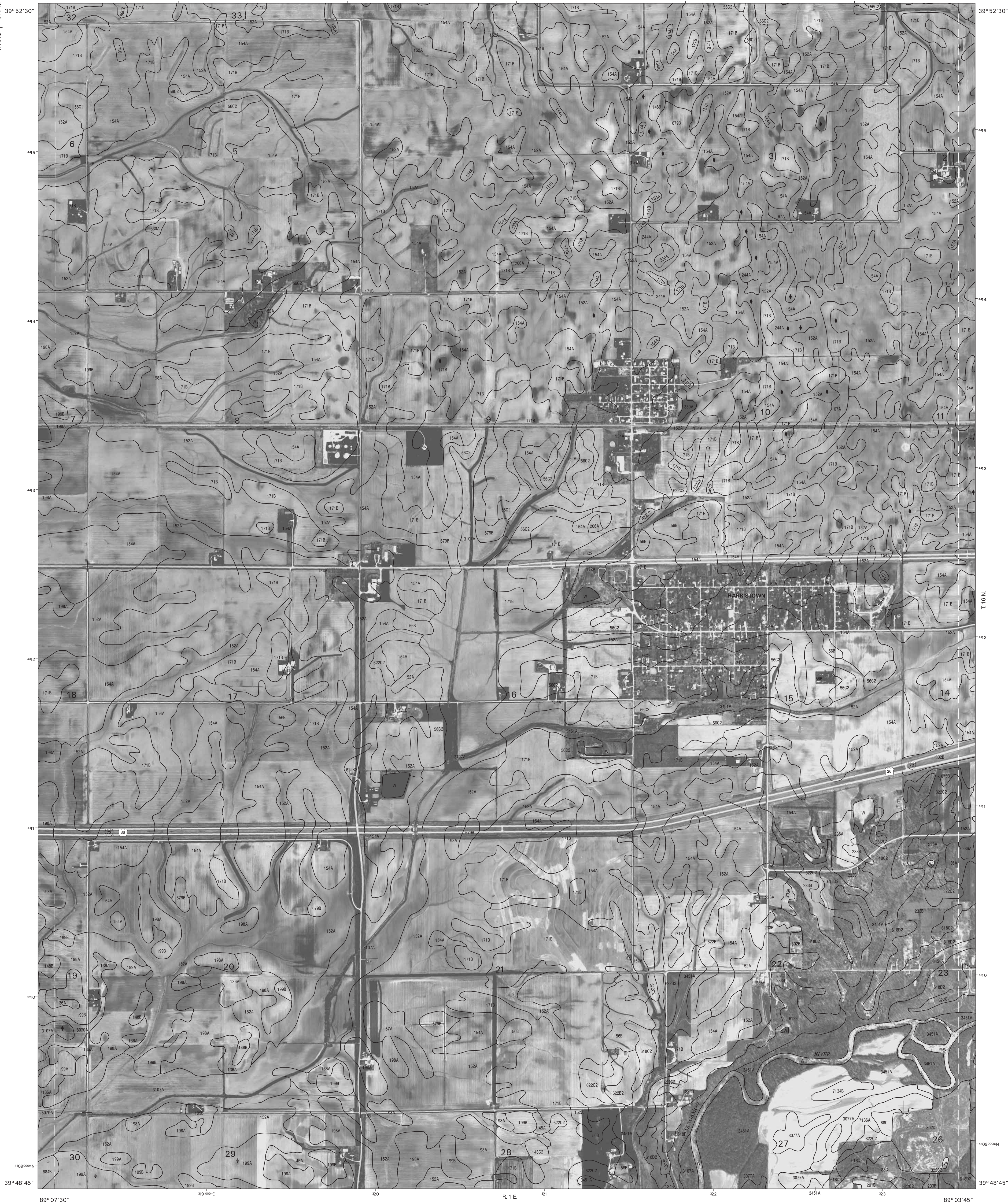
17	18	19	17 LATHAM SW 18 LATHAM SE 19 WARRENSBURG SW 26 NANTIC NW 28 HARRISTOWN NW
26		28	
	35	36	35 NANTIC SE 36 HARRISTOWN SW

INDEX TO ADJOINING 3.75 MAPS

NIANTIC NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 27 OF 55

Soil map delineations extending beyond the dashed white quadrangle neeline are for reference only and are included on adjacent map sheets.

T. 16 N. | T. 17 N.

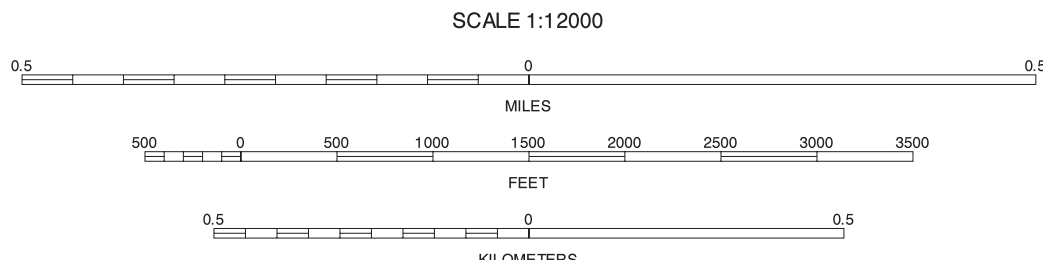


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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks; Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

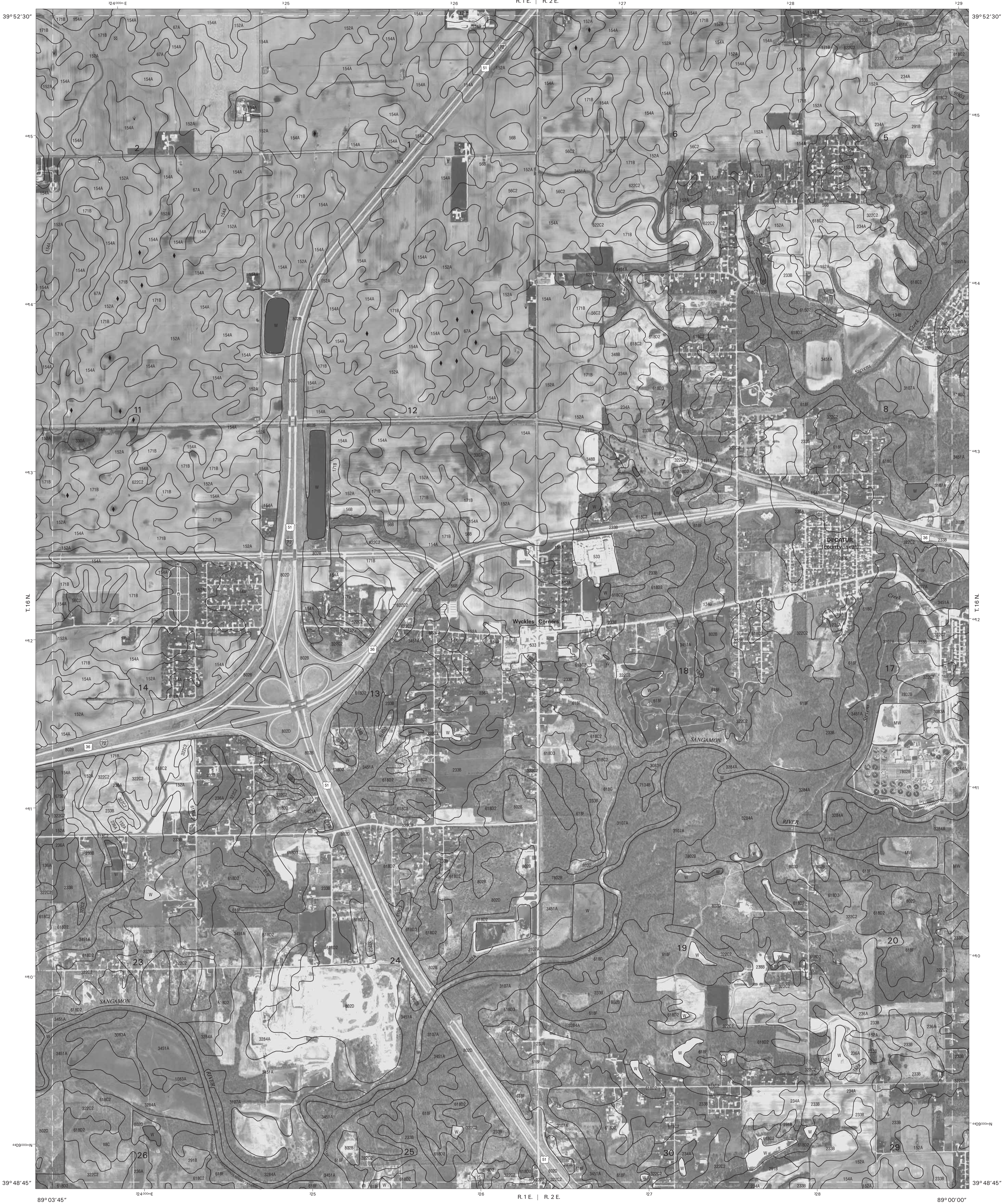


18	19	20	18 LATHAM SE 19 WARRENSBURG SW 20 WARRENSBURG SE
27		29	27 NIANTIC NE 29 HARRISTOWN NE 35 NIANTIC SE
35	36	37	36 HARRISTOWN SW 37 HARRISTOWN SE

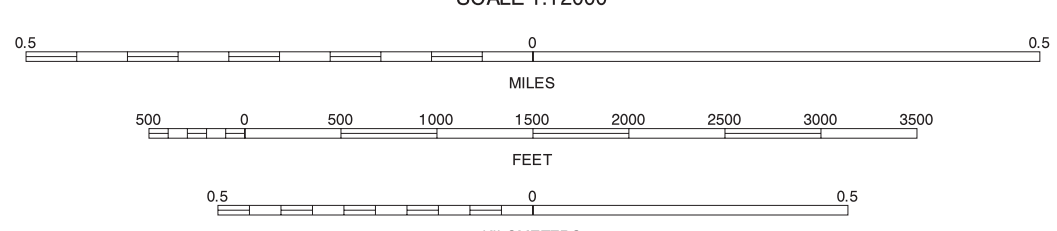
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HARRISTOWN NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 28 OF 55

Soil map delineations extending beyond the dashed white quadrangle neckline are for reference only and are included on adjacent map sheets.



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Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.
North American Datum of 1983 (NAD83), GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



19	20	21	19 WARRENSBURG SW 20 WARRENSBURG SE 21 FORSYTH SW 28 HARRISTOWN NW
28	30	30	30 DECATUR NW 36 HARRISTOWN SW 37 HARRISTOWN SE 38 DECATUR SW
36	37	38	

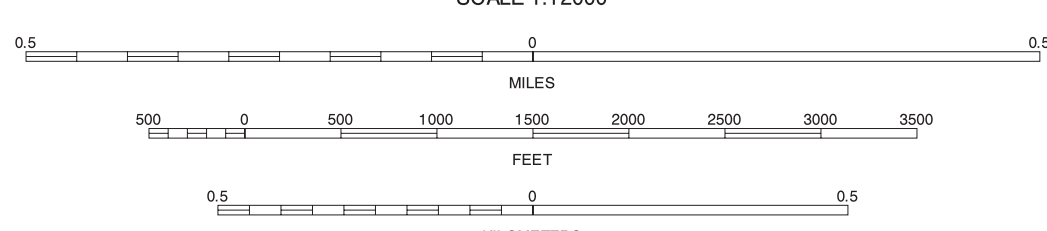
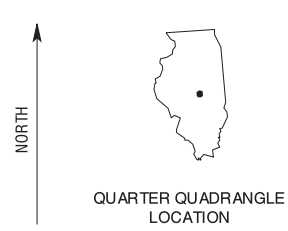
HARRISTOWN NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 29 OF 55

Soil map delineations extending beyond the dashed white quadrangle neckline are for reference only and are included on adjacent map sheets.



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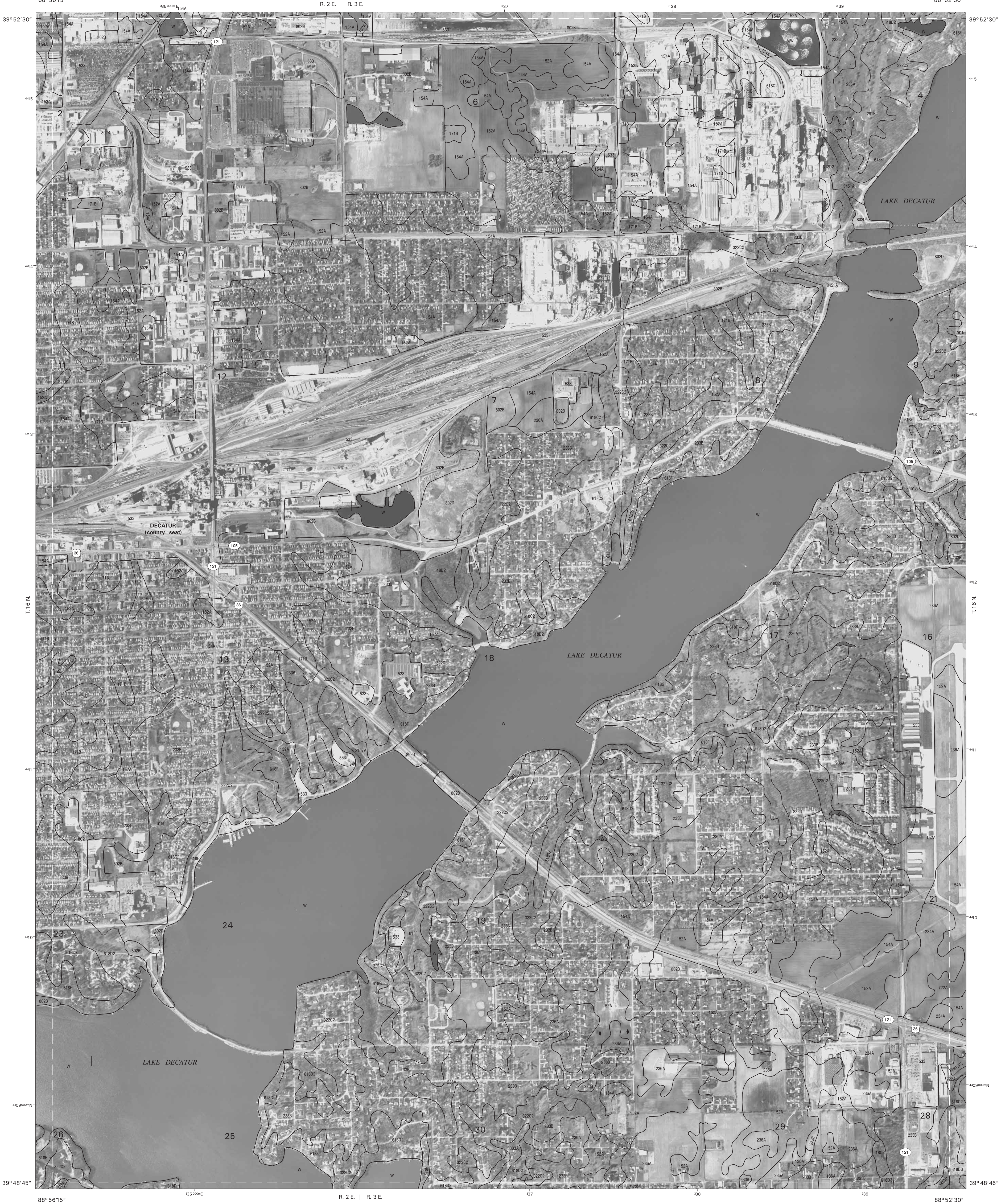
North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



20	21	22	20 WARRENSBURG SE
29	31	31	21 FORSYTH SW
37	38	39	22 FORSYTH SE
			29 HARRISTOWN NE
			31 DECATUR NE
			37 HARRISTOWN SE
			38 DECATUR SW
			39 DECATUR SE

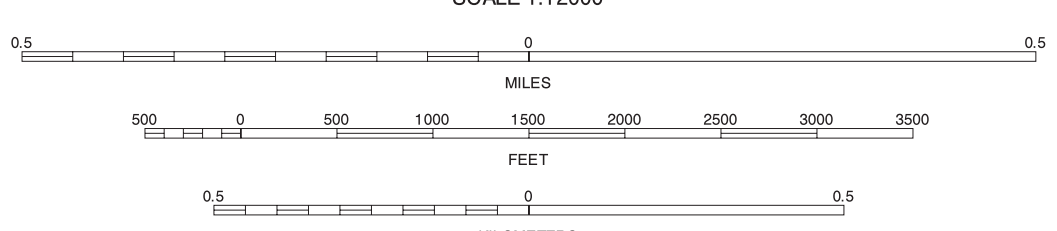
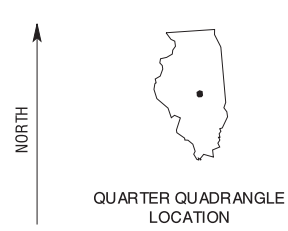
DECATUR NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 30 OF 55

Soil map delineations extending beyond the dashed white quadrangle neoline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



21	22	23	21 FORSYTH SW
			22 FORSYTH SE
			23 ARGENTA SW
			30 DECATUR NW
30		32	32 LONG CREEK NW
			38 DECATUR SW
			39 DECATUR SE
38	39	40	40 LONG CREEK SW

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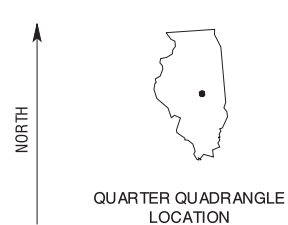
DECATUR NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 31 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.



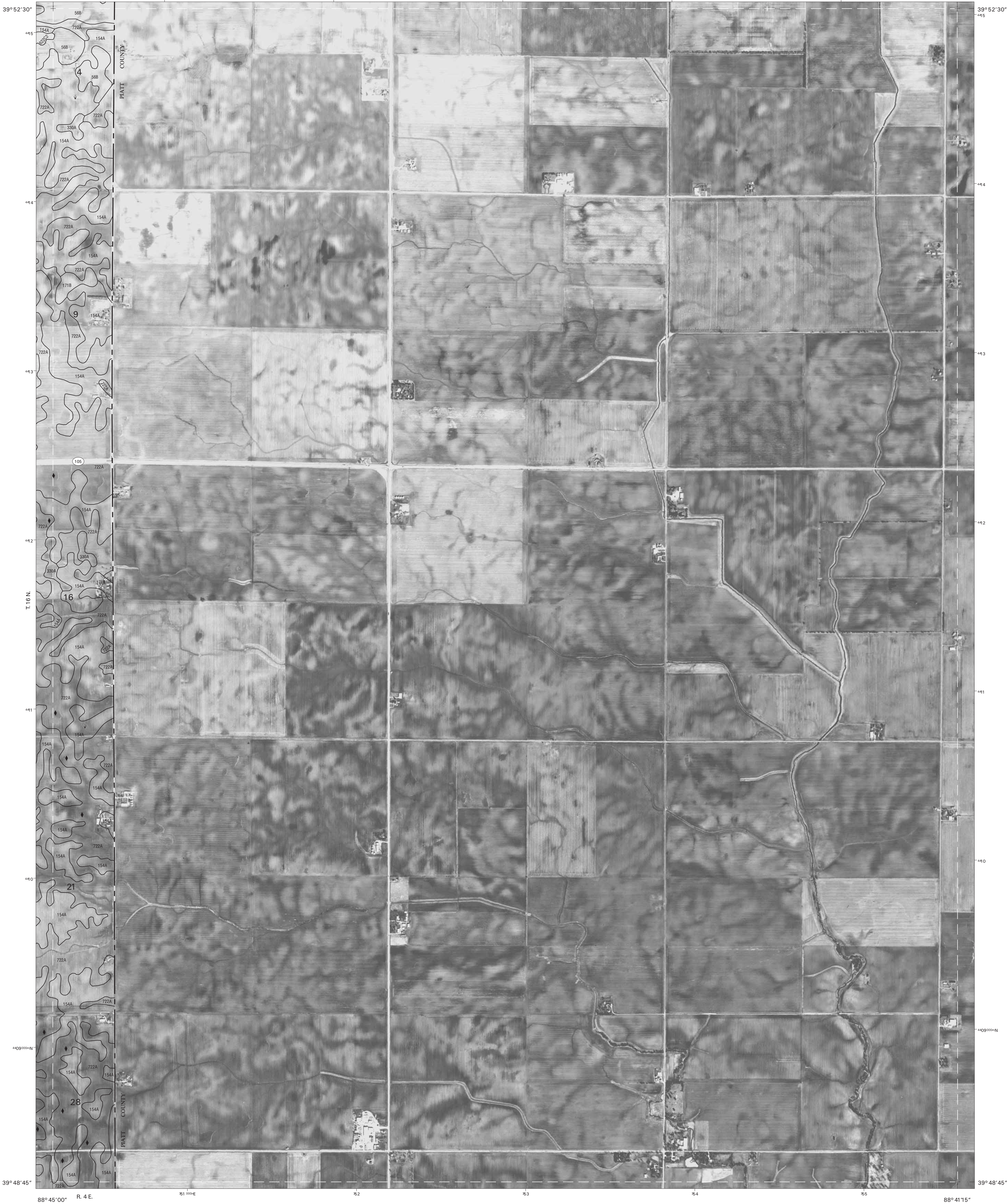
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION



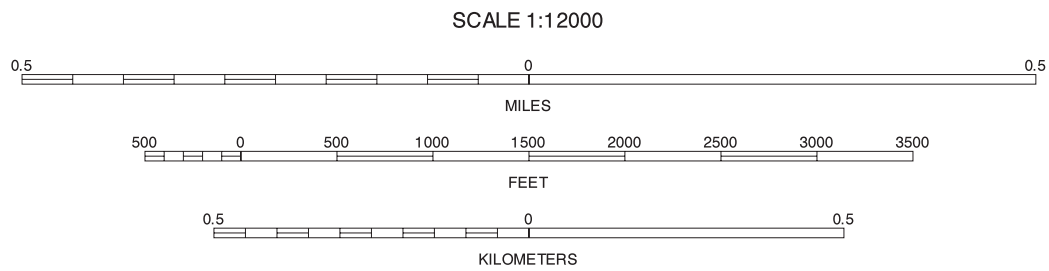


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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE
LOCATION



24	25	24 ARGENTA SE 25 CERRO GORDO SW
33		33 LONG CREEK NE
41	42	41 LONG CREEK SE 42 LA PLACE SW

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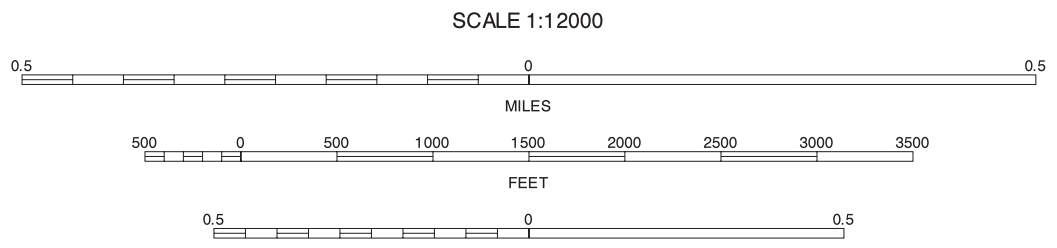
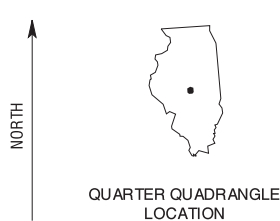
LA PLACE NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 34 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



26	27	28	26 NIANTIC NW
		28	27 NIANTIC NE
		36	28 HARRISTOWN NW
		43	36 HARRISTOWN SW
	43	44	43 STONINGTON NE
			44 MACON WEST NW

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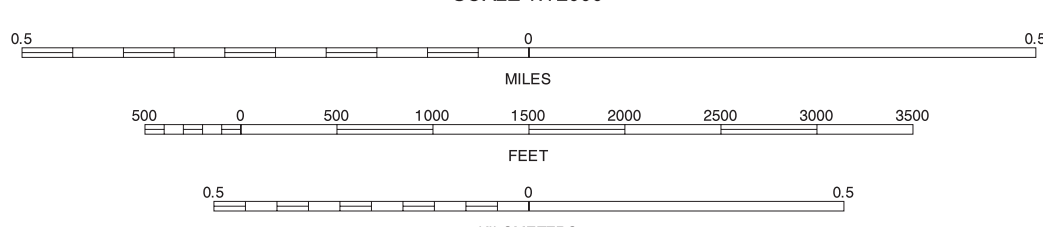
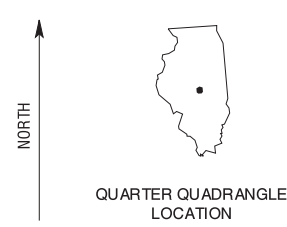
NIANTIC SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 35 OF 55

Soil map delineations extending beyond the dashed white quadrangle neckline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks; Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

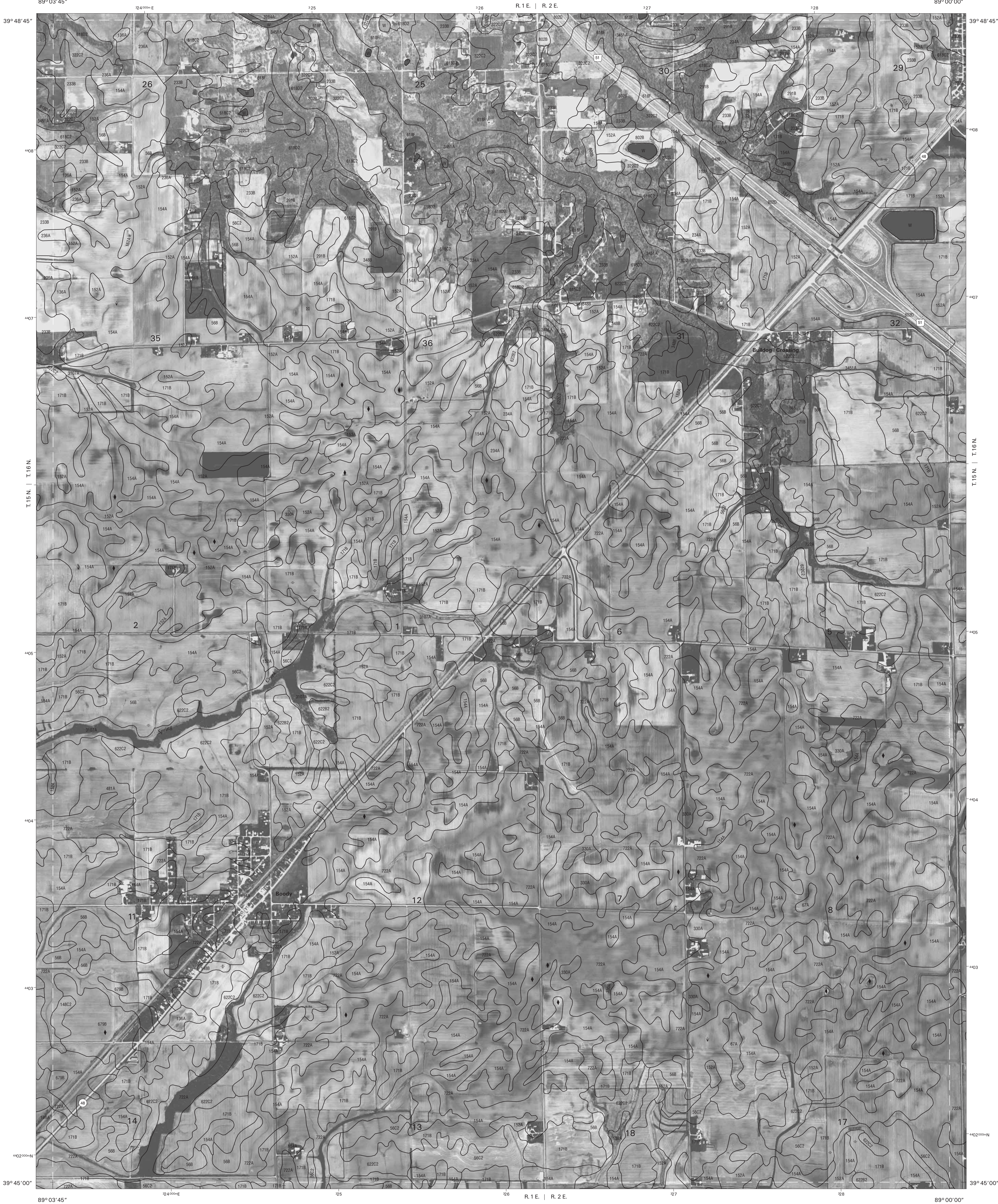


27	28	29	27 NIANTIC NE 28 HARRISTOWN NW 29 HARRISTOWN NE 35 NIANTIC SE
35		37	37 HARRISTOWN SE 43 STONINGTON NE 44 MACON WEST NW 45 MACON WEST NE
43	44	45	

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HARRISTOWN SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 36 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

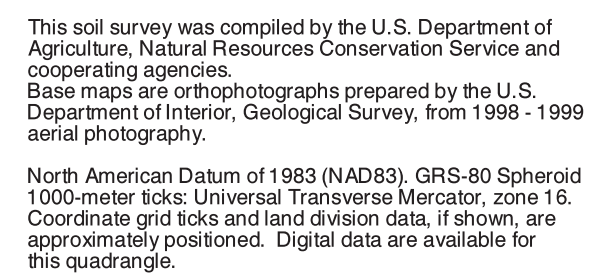
28	29	30	28 HARRISTOWN NW 29 HARRISTOWN NE 30 DECATUR NW 36 HARRISTOWN SW 38 DECATUR SW 44 MACON WEST NW 45 MACON WEST NE 46 MACON EAST NW
36		38	
44	45	46	

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HARRISTOWN SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 37 OF 55

Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.

MACON COUNTY, ILLINOIS
DECATUR SW QUADRANGLE
SHEET NUMBER 38 OF 55
88°56'15"



SCALE 1:12000

The scales are as follows:

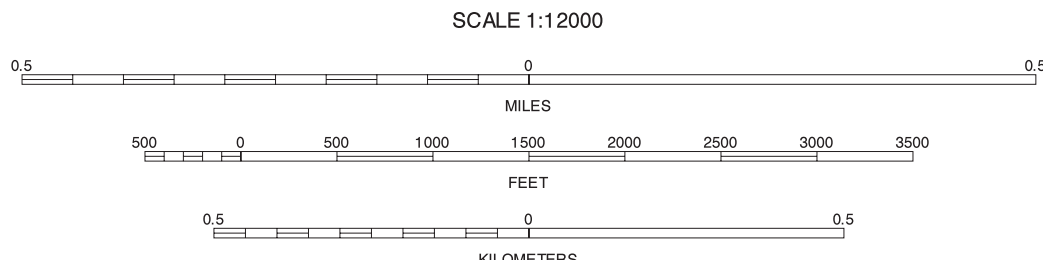
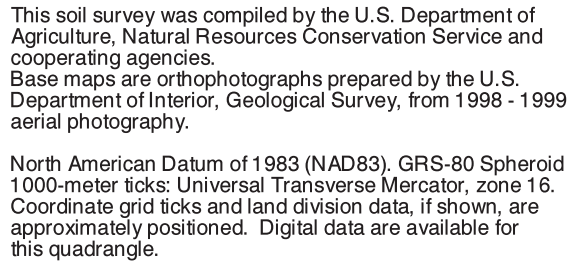
- MILES:** A horizontal line with a central zero point. The left end is labeled 0.5 and the right end is labeled 0. There are four tick marks between 0.5 and 0, dividing the distance into five equal segments.
- FEET:** A horizontal line with a central zero point. The left end is labeled 500 and the right end is labeled 3500. There are tick marks at 500, 1000, 1500, 2000, 2500, 3000, and 3500.
- METERS:** A horizontal line with a central zero point. The left end is labeled 0.5 and the right end is labeled 0.5. There are four tick marks between the two 0.5 labels, dividing the distance into five equal segments.

29	30	31	29 HARRISTOWN NE
			30 DECATUR NW
			31 DECATUR NE
37		39	37 HARRISTOWN SE
			39 DECATUR SE
			45 MACON WEST NE
45	46	47	46 MACON EAST NW
			47 MACON EAST NE

INDEX TO ADJOINING 3.75 MAPS

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

MACON COUNTY, ILLINOIS
DECATUR SE QUADRANGLE
SHEET NUMBER 39 OF 55
88° 52' 30"

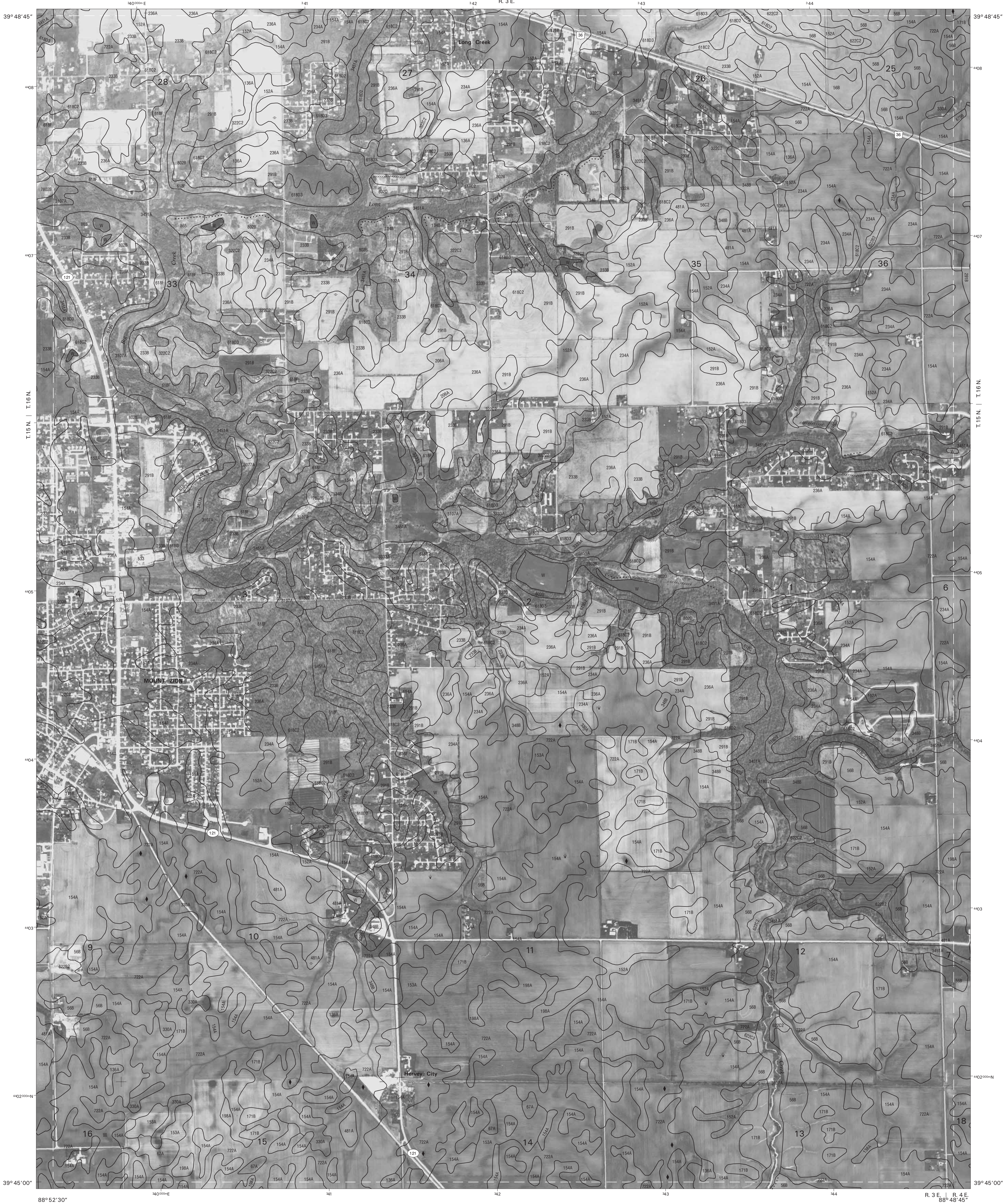


30	31	32	30 DECATUR NW
			31 DECATUR NE
38		40	32 LONG CREEK NW
			38 DECATUR SW
46	47	48	40 LONG CREEK SW
			46 MACON EAST NW
			47 MACON EAST NE
			48 DALTON CITY NW

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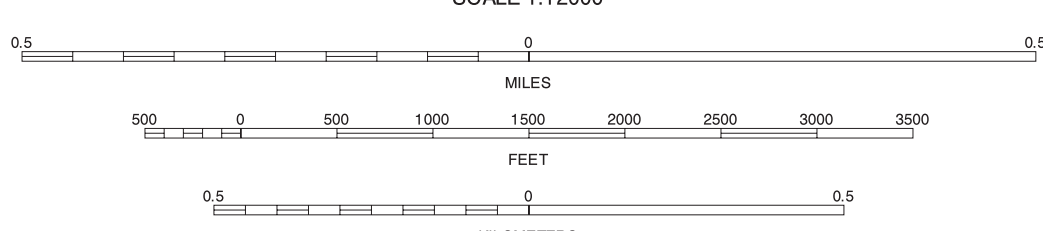
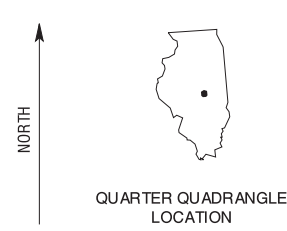
DECATUR SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 39 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



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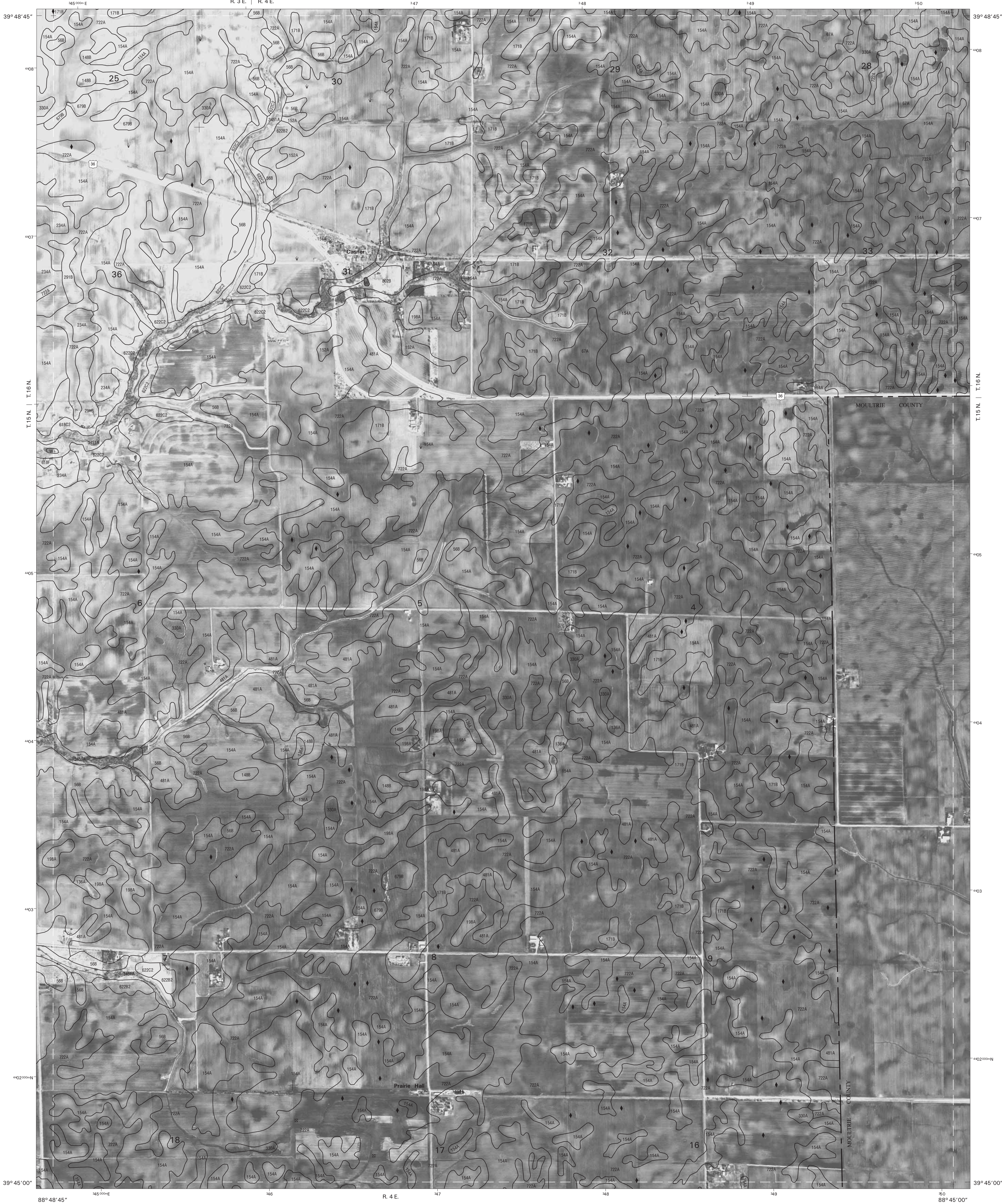
North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



31	32	33	31 DECATUR NE
			32 LONG CREEK NW
			33 LONG CREEK NE
39		41	39 DECATUR SE
			41 LONG CREEK SE
			47 MACON EAST NE
47	48	49	48 DALTON CITY NW
			49 DALTON CITY NE

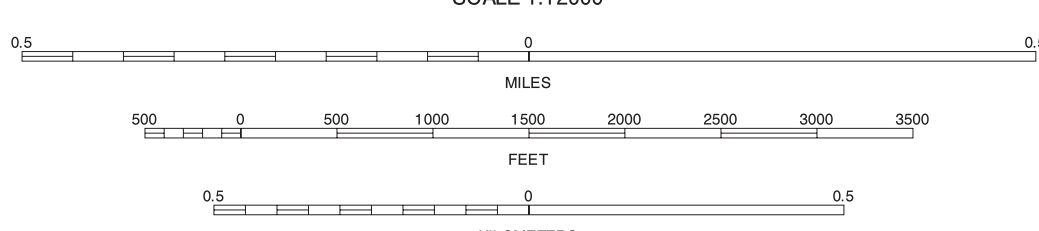
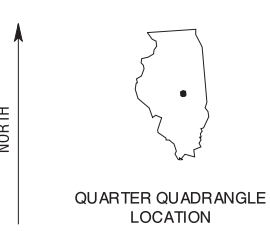
LONG CREEK SW, ILLINOIS
375 MINUTE SERIES
SHEET NUMBER 40 OF 55

Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



32	33	34	32 LONG CREEK NW 33 LONG CREEK NE 34 LA PLACE NW 40 LONG CREEK SW 42 LA PLACE SW 48 DALTON CITY NW 49 DALTON CITY NE
40		42	
48	49		

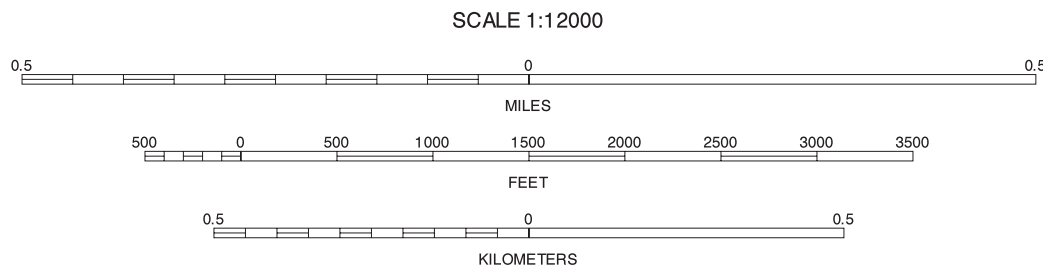
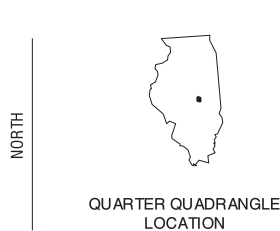
LONG CREEK SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 41 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks; Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

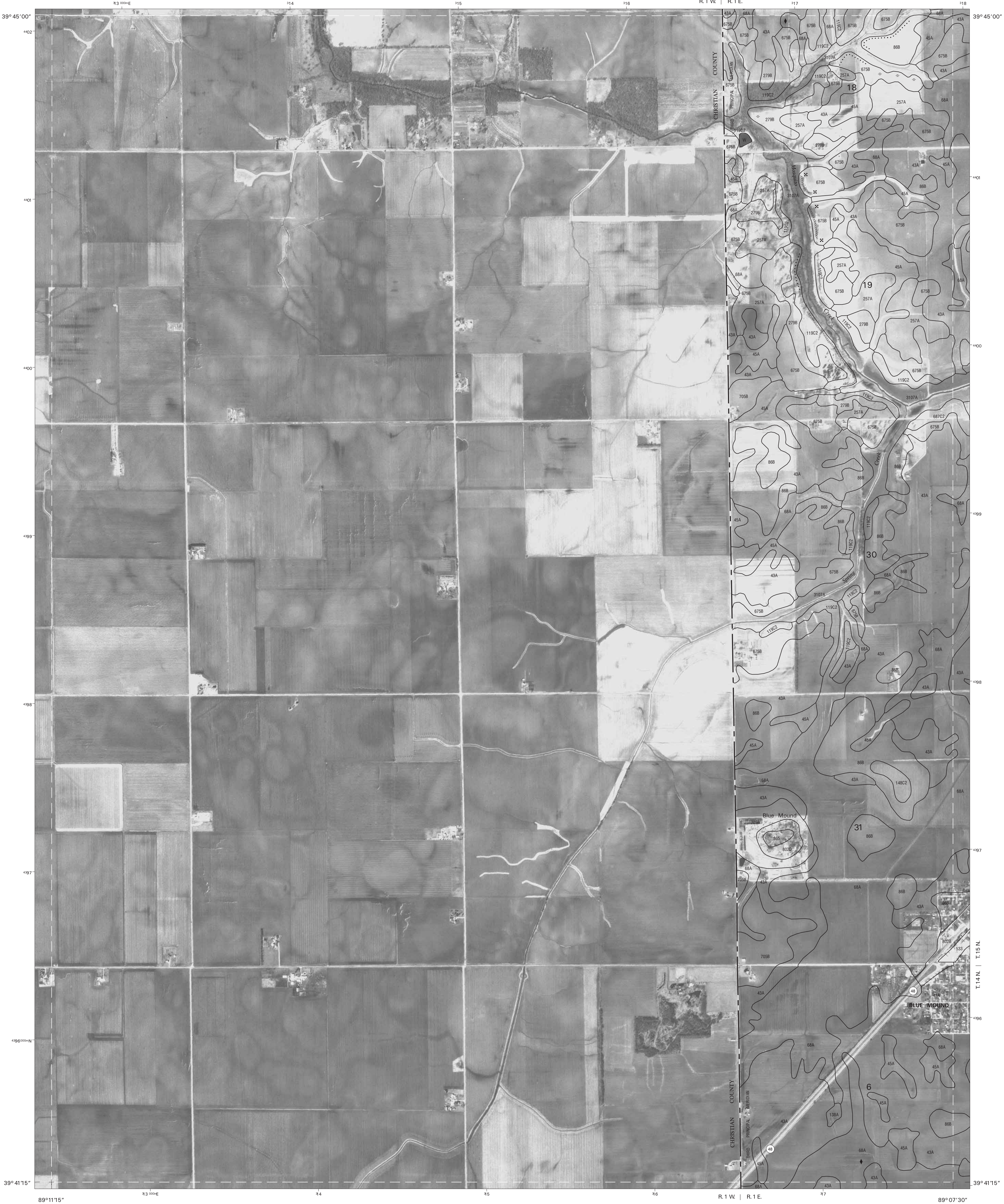


33	34	33 LONG CREEK NE 34 LA PLACE NW
41		41 LONG CREEK SE 49 DALTON CITY NE
49		

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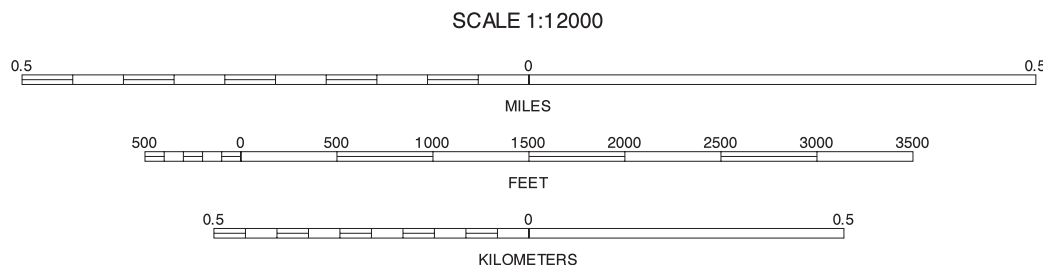
LA PLACE SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 42 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



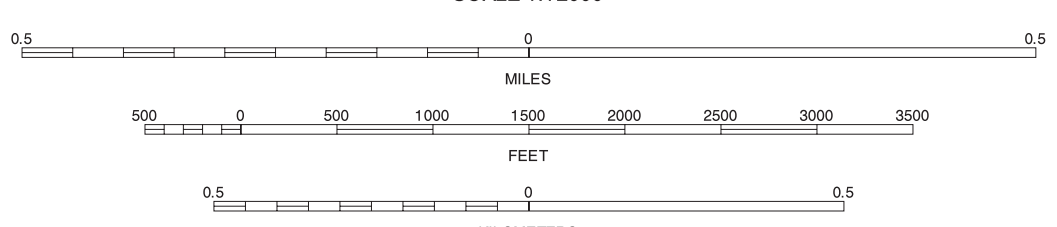
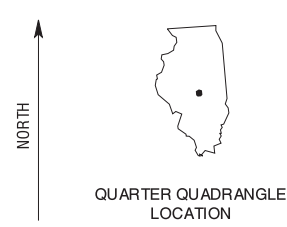
	35	36	35 NANTIC SE 36 HARRISTOWN SW
		44	44 MACON WEST NW
	50	51	50 STONINGTON SE 51 MACON WEST SW

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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



35	36	37	38 NIANTIC SE
43		45	36 HARRISTOWN SW
50	51	52	37 HARRISTOWN SE
			43 STONINGTON NE
			45 MACON WEST NE
			50 STONINGTON SE
			51 MACON WEST SW
			52 MACON WEST SE

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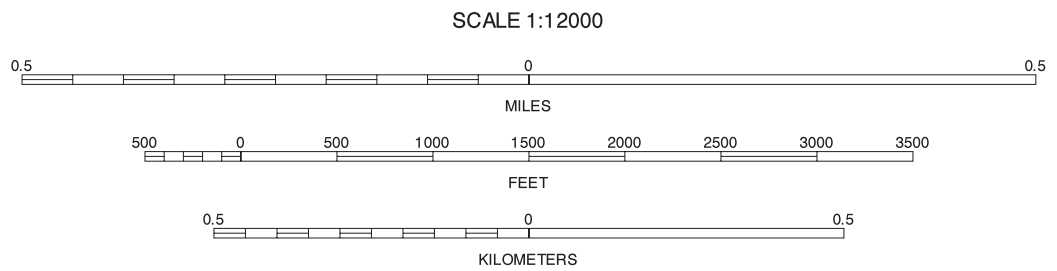
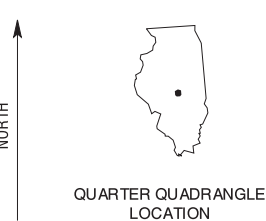
MACON WEST NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 44 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks; Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

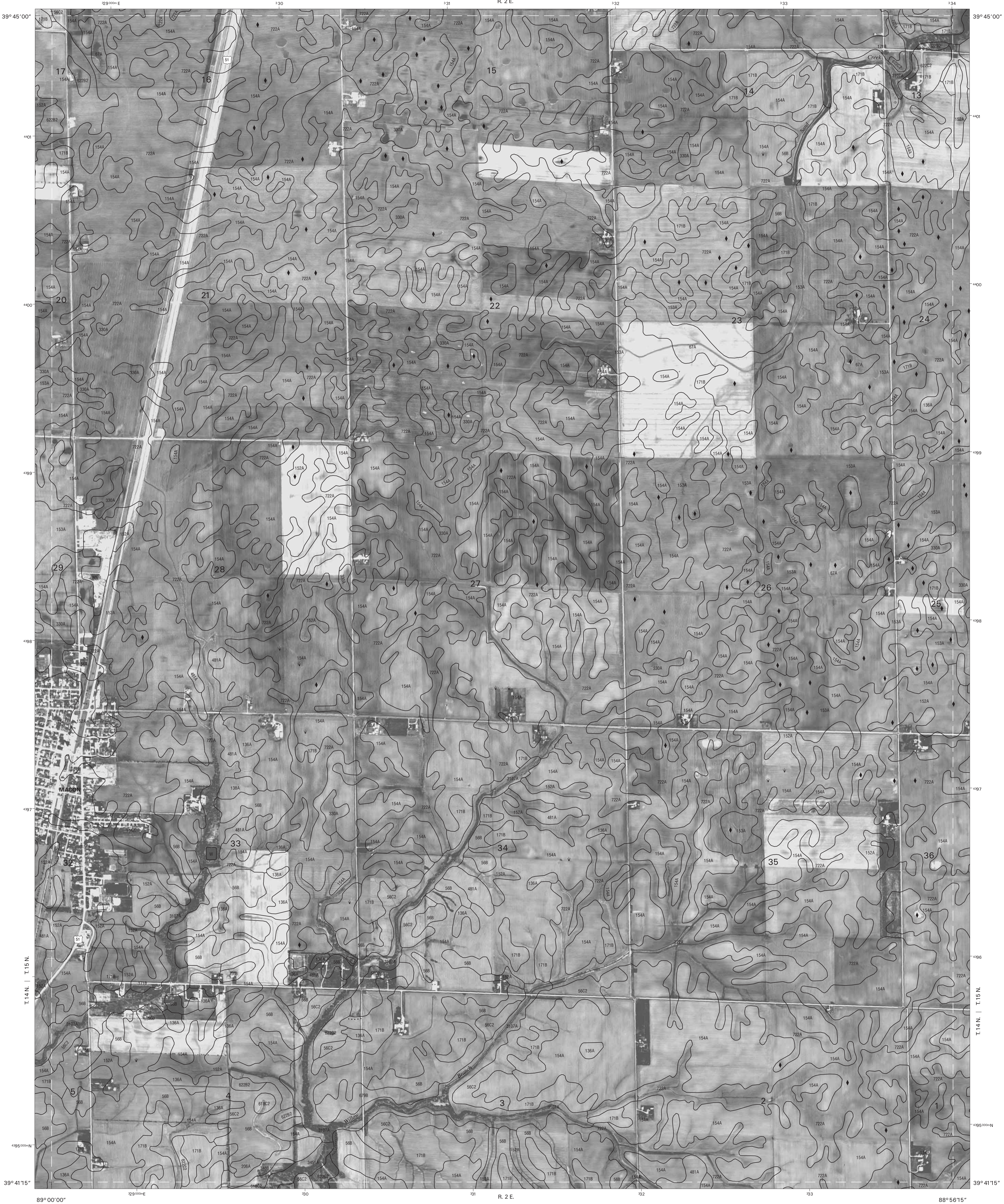


36	37	38	38 HARRISTOWN SW
44		46	37 HARRISTOWN SE
51	52	53	38 DECATUR SW
			44 MACON WEST NW
			46 MACON EAST NW
			51 MACON WEST SW
			52 MACON WEST SE
			53 MACON EAST SW

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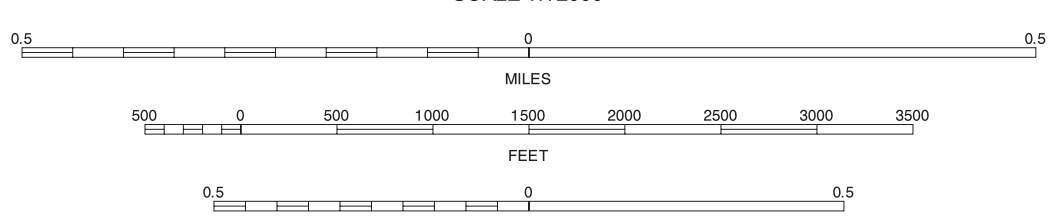
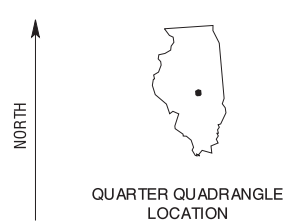
MACON WEST NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 45 OF 55

Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

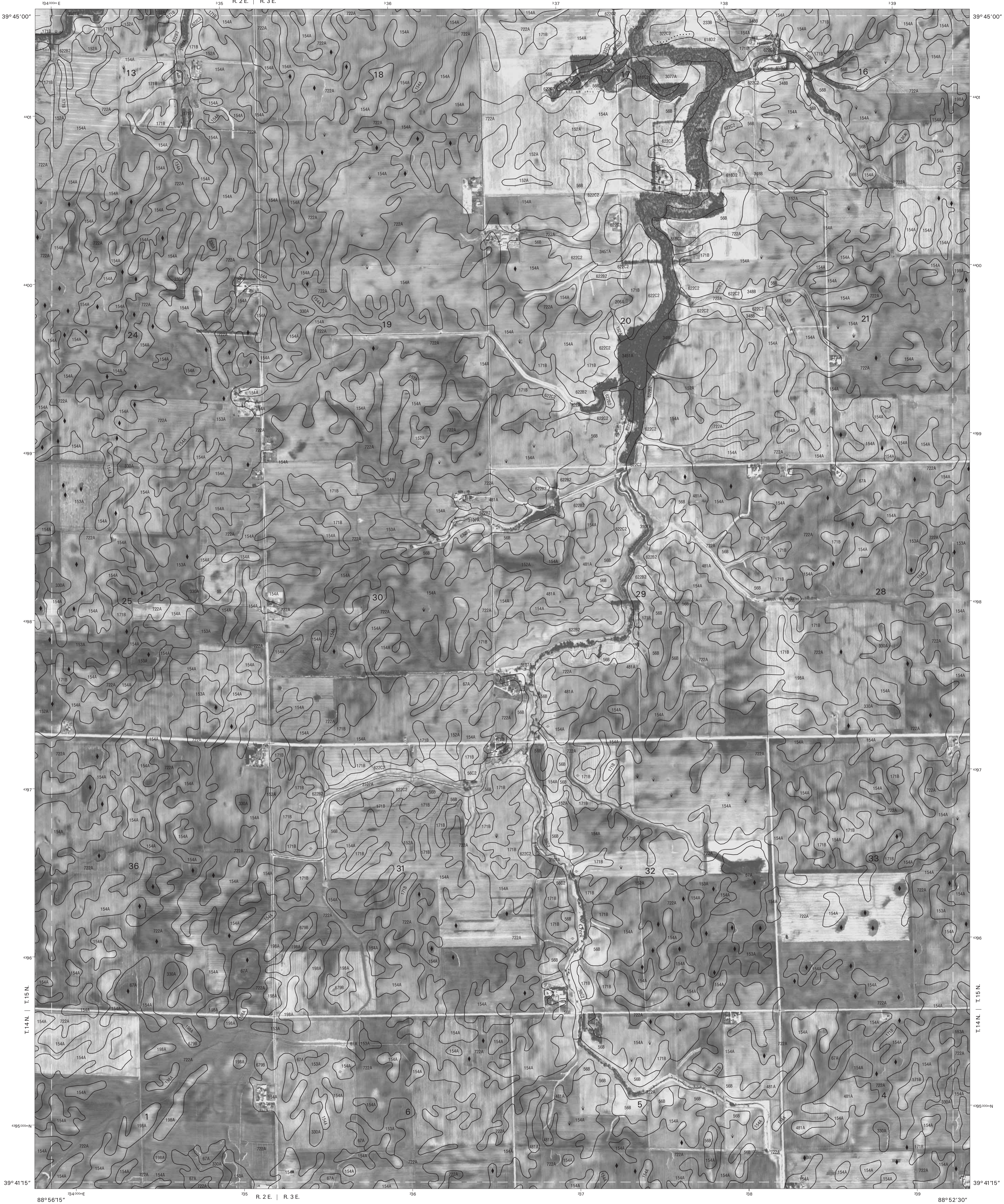


37	38	39	37 HARRISTOWN SE 38 DECATUR SW 39 DECATUR SE
45		47	45 MACON WEST NE 47 MACON EAST NE 52 MACON WEST SE 53 MACON EAST SW 54 MACON EAST SE
52	53	54	

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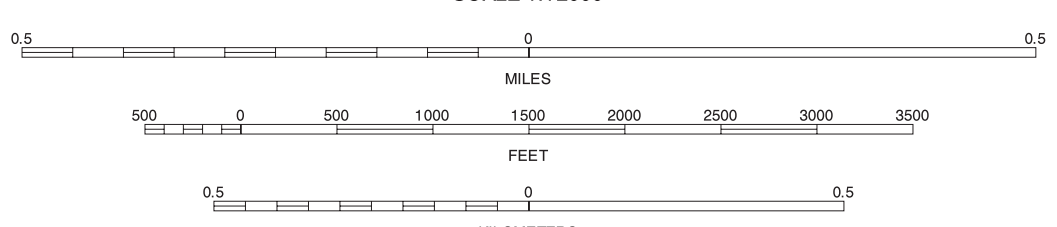
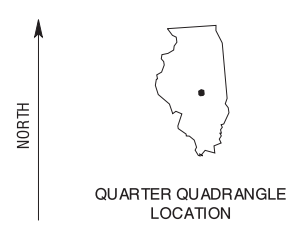
MACON EAST NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 46 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



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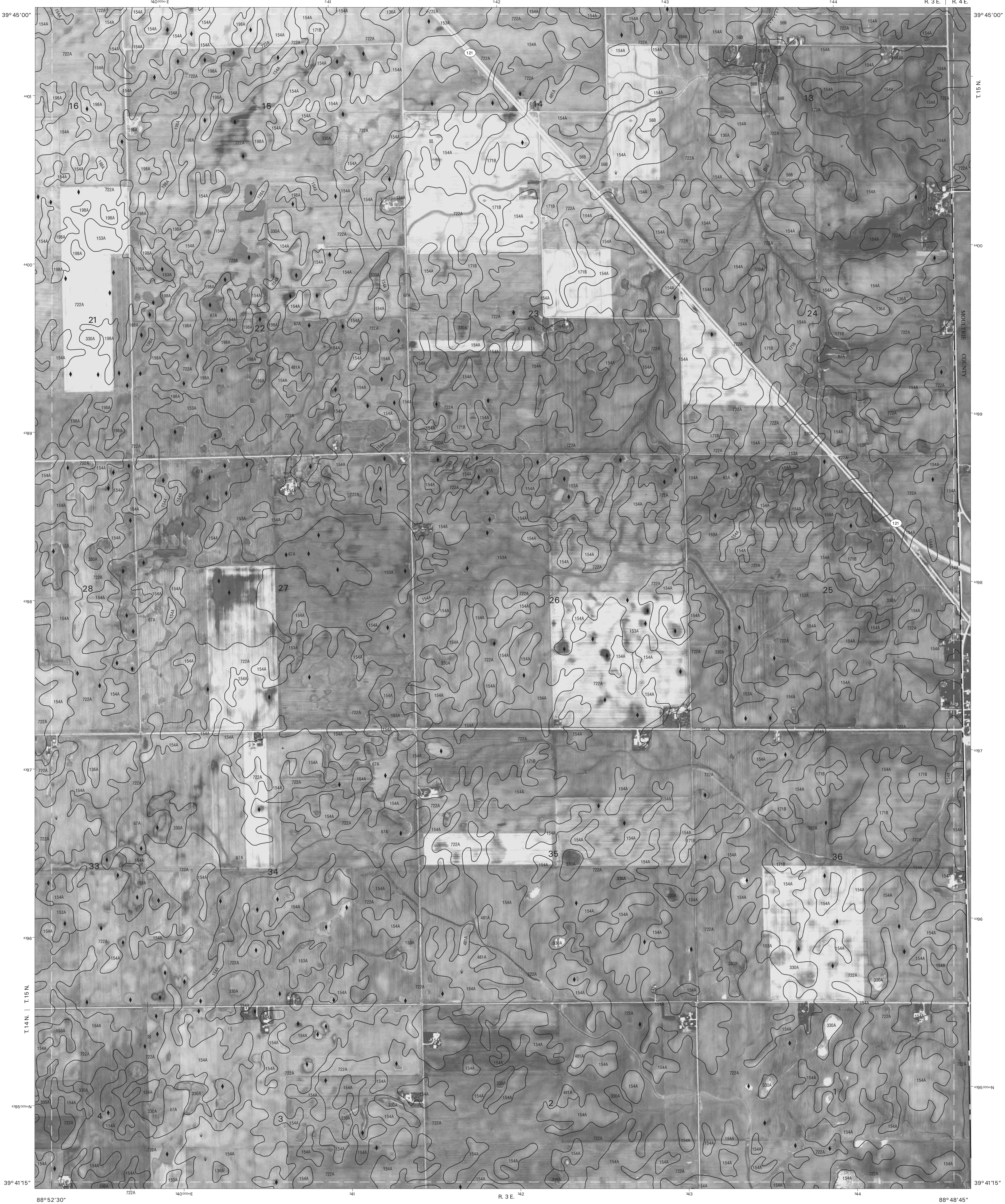
North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



38	39	40	38 DECATUR SW
46		48	40 LONG CREEK SW
			48 MACON CITY NW
53	54	55	53 MACON EAST SW
			54 MACON EAST SE
			55 DALTON CITY SW

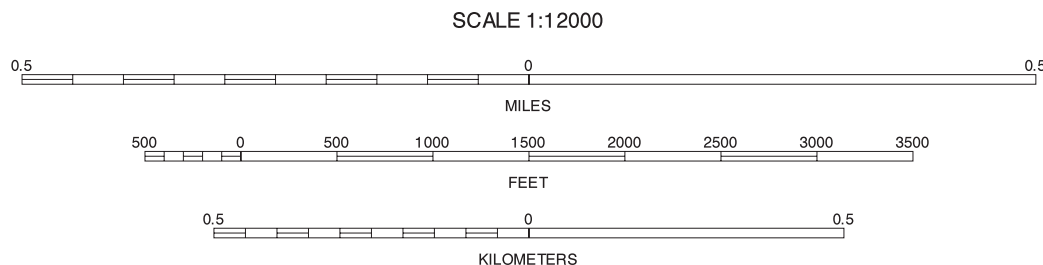
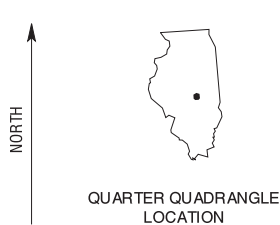
MACON EAST NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 47 OF 55

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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

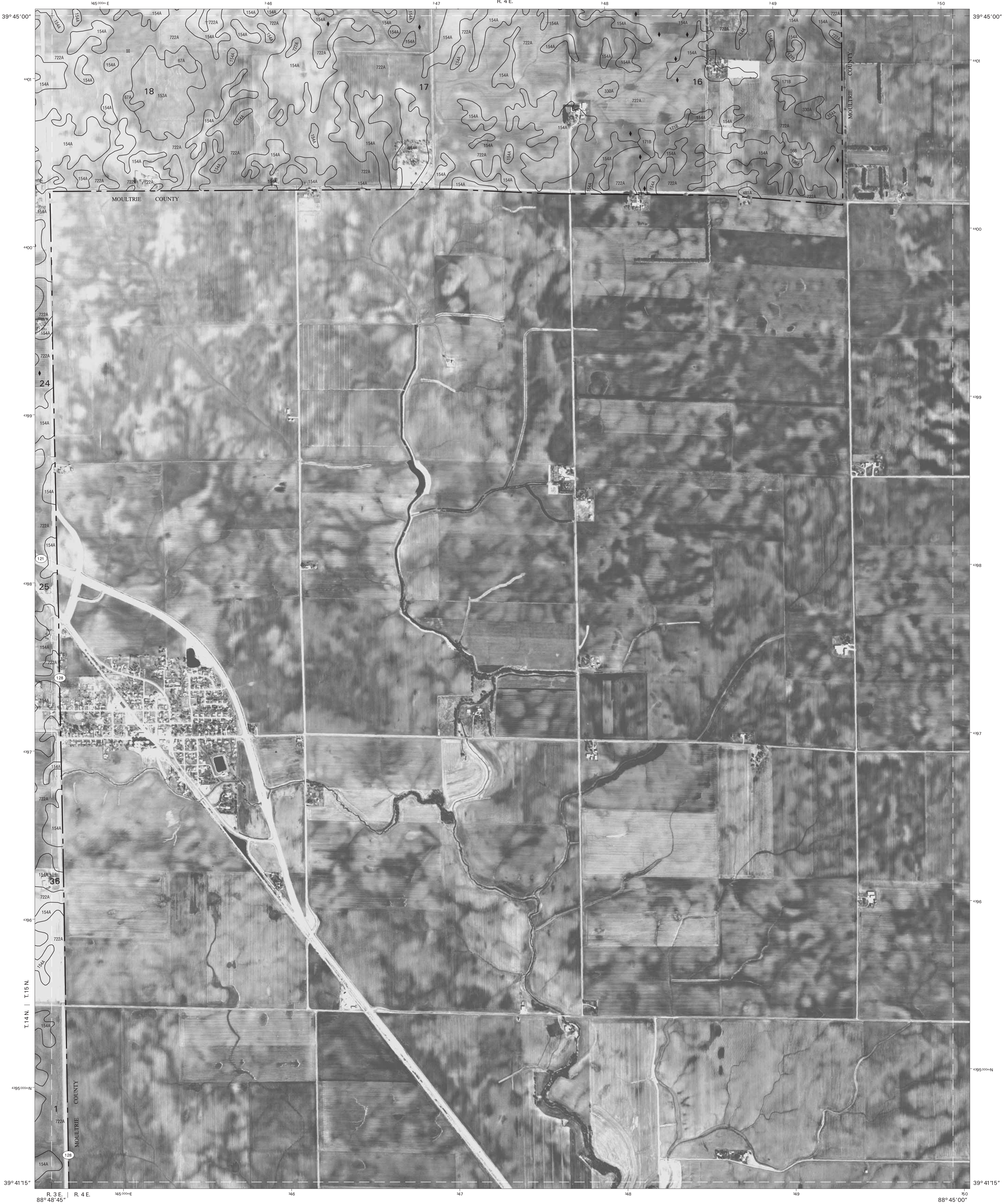


39	40	41	39 DECATUR SE 40 LONG CREEK SW 41 LONG CREEK SE
47		49	47 MACON EAST NE 49 DALTON CITY NE 54 MACON EAST SE 55 DALTON CITY SW
54	55		

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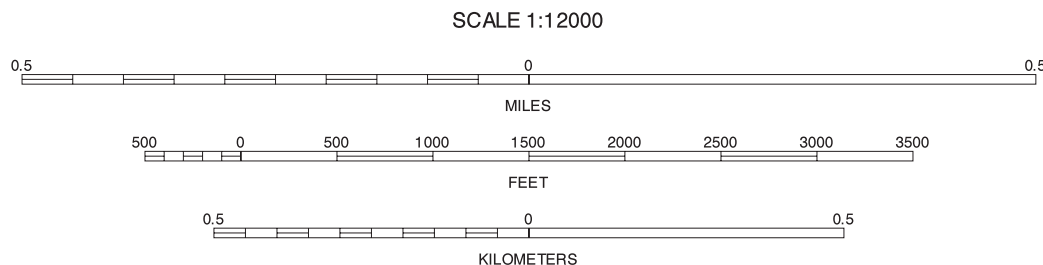
DALTON CITY NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 48 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

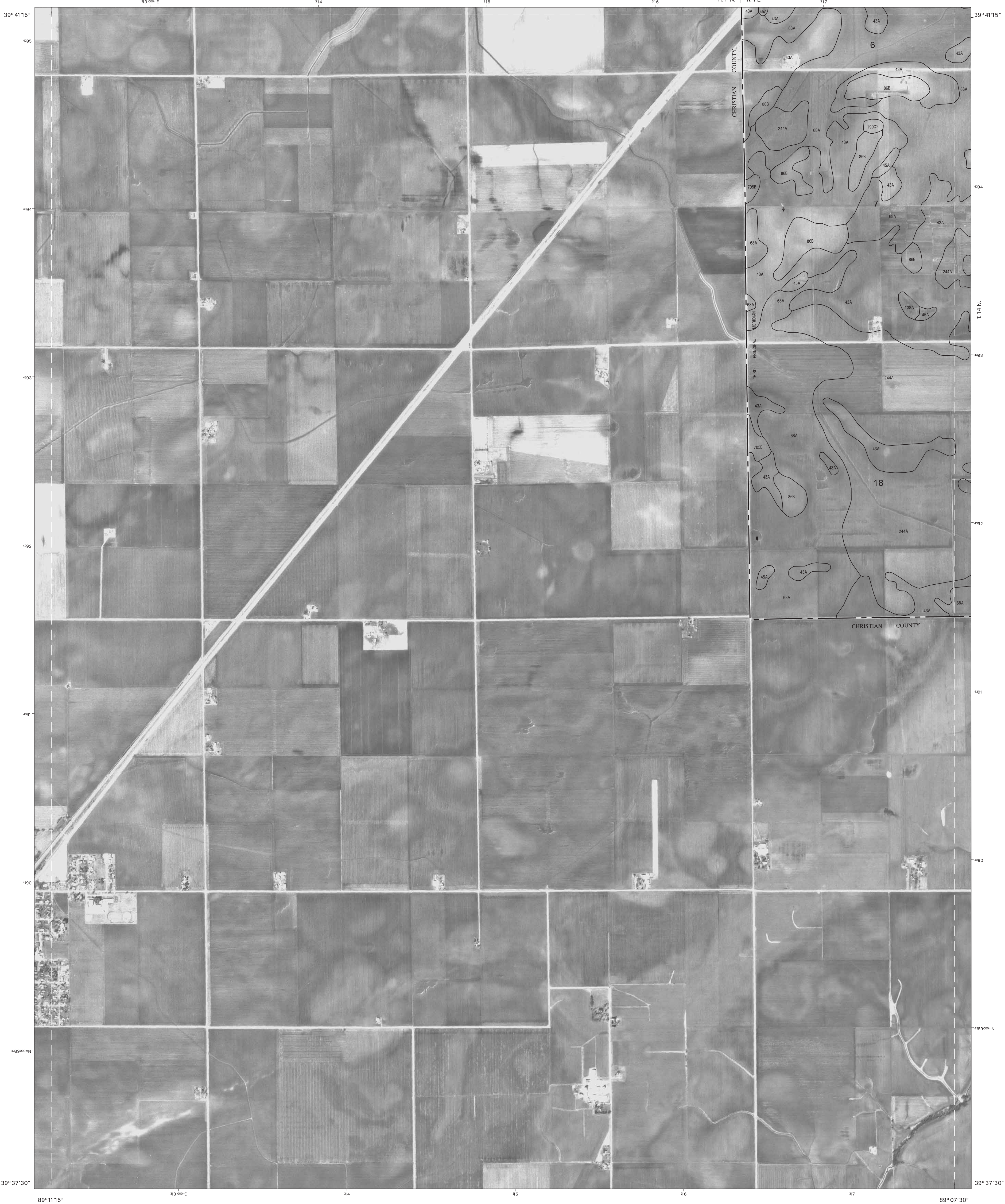


40	41	42	40 LONG CREEK SW
48			41 LONG CREEK SE
			42 LA PLACE SW
			48 DALTON CITY NW
55			55 DALTON CITY SW

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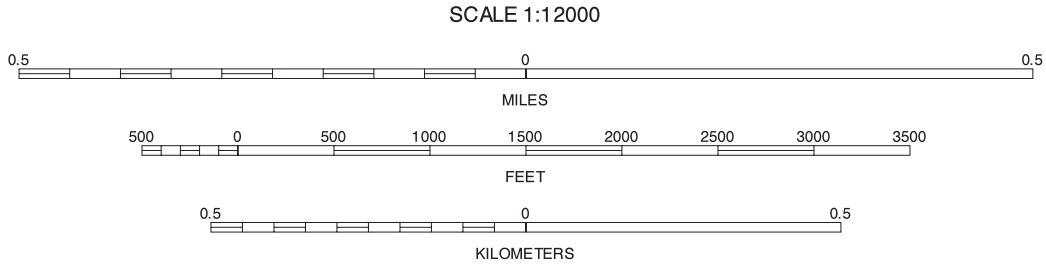
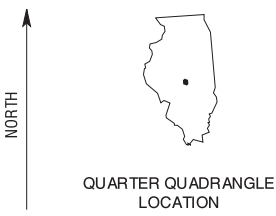
DALTON CITY NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 49 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



	43	44	43 STONINGTON NE
			44 MACON WEST NW
		51	51 MACON WEST SW

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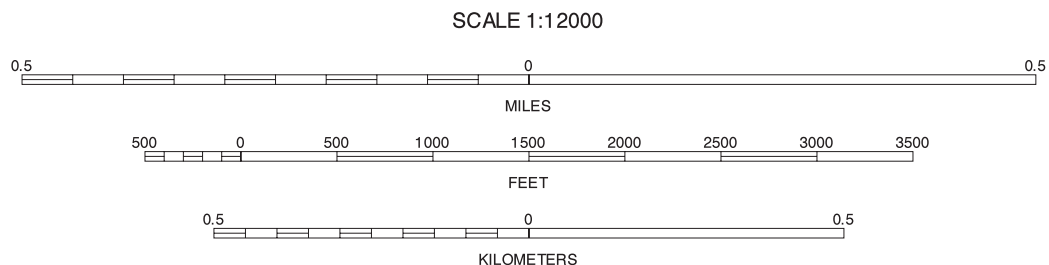
STONINGTON SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 50 OF 55

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

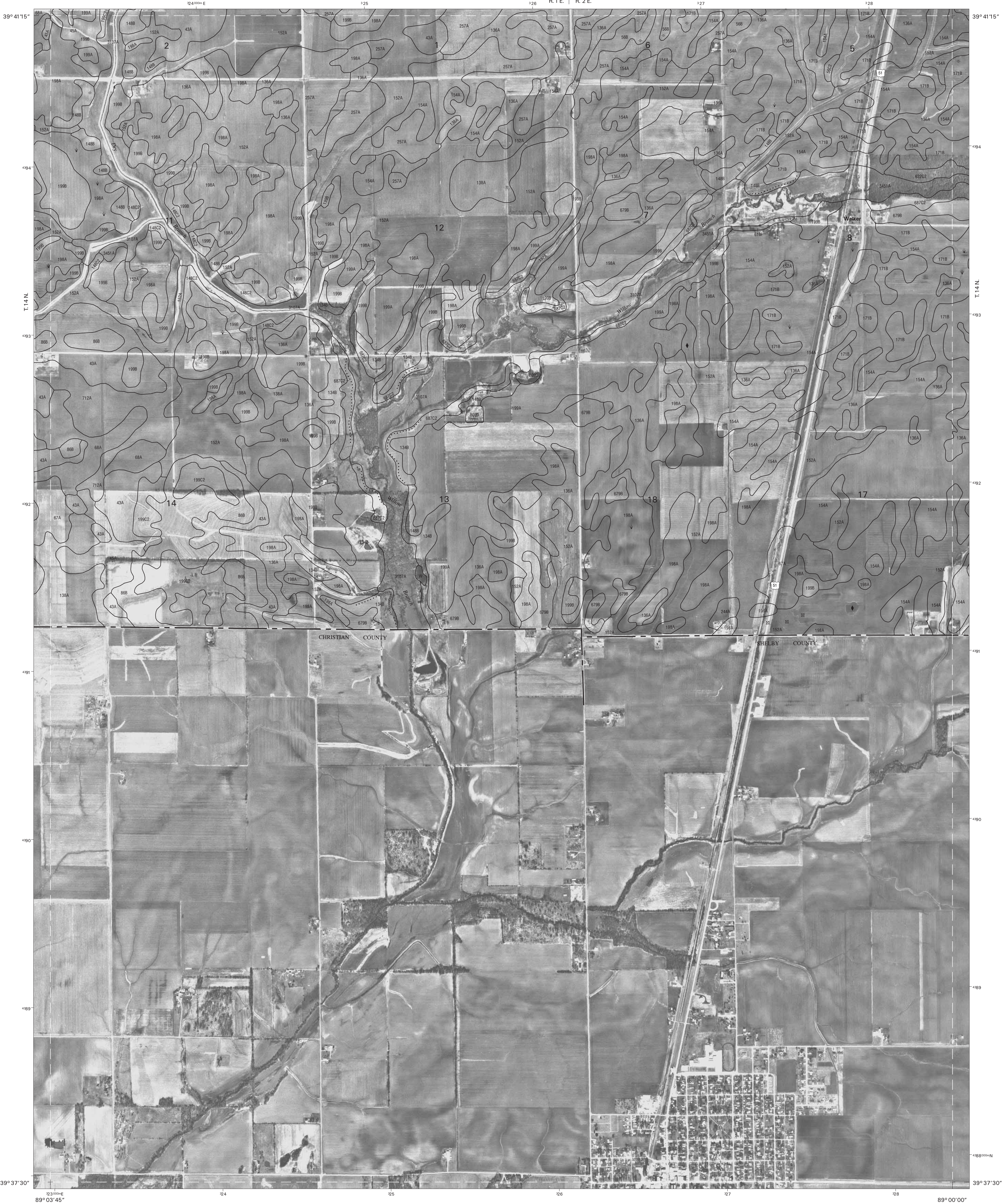


43	44	45	43 STONINGTON NE
50		52	44 MACON WEST NW
			45 MACON WEST NE
			50 STONINGTON SE
			52 MACON WEST SE

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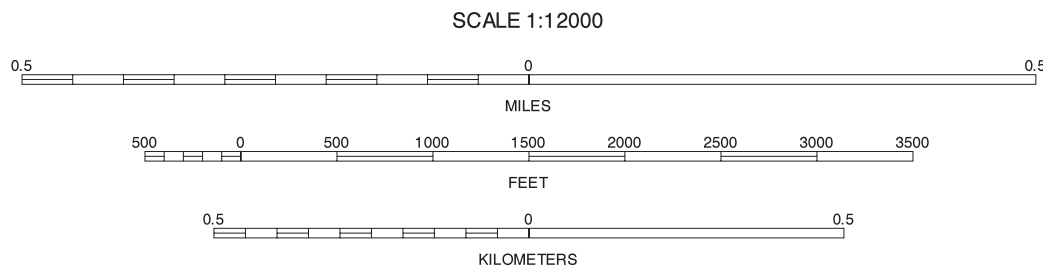
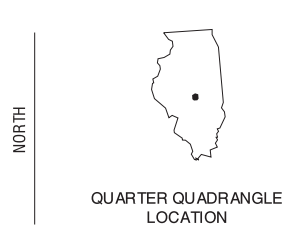
MACON WEST SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 51 OF 55

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This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1988-1999 aerial photography.

North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks; Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



44	45	46	44 MACON WEST NW 45 MACON WEST NE 46 MACON EAST NW 51 MACON WEST SW 53 MACON EAST SW
51		53	

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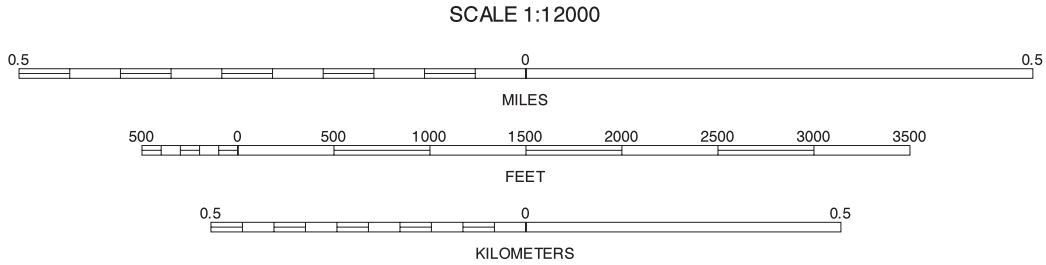
MACON WEST SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 52 OF 55

Soil map delineations extending beyond the dashed white quadrangle neeline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

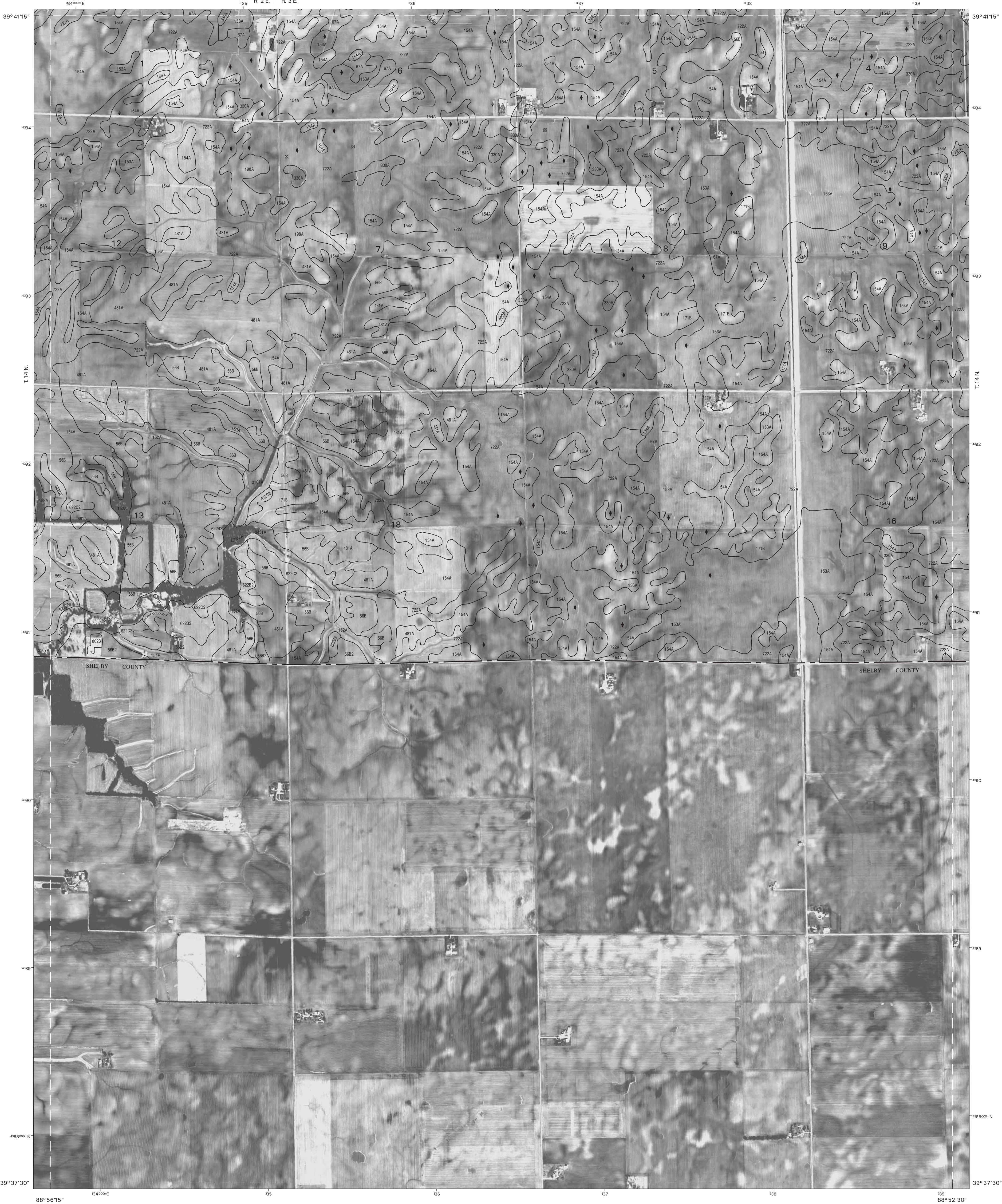


45	46	47	45 MACON WEST NE 46 MACON EAST NW 47 MACON EAST NE 52 MACON WEST SE 54 MACON EAST SE
52		54	

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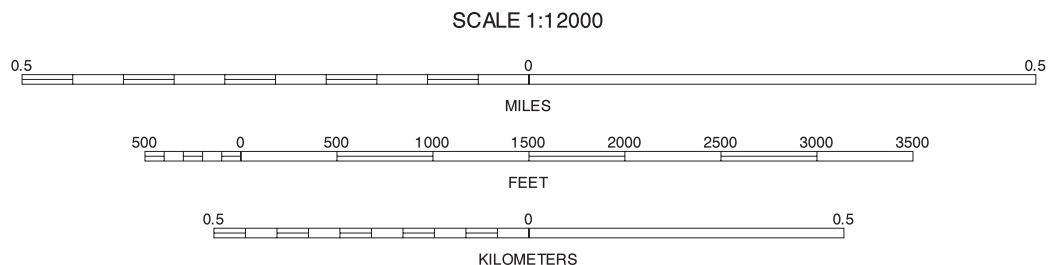
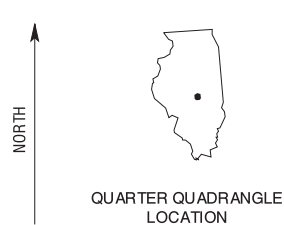
MACON EAST SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 53 OF 55

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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

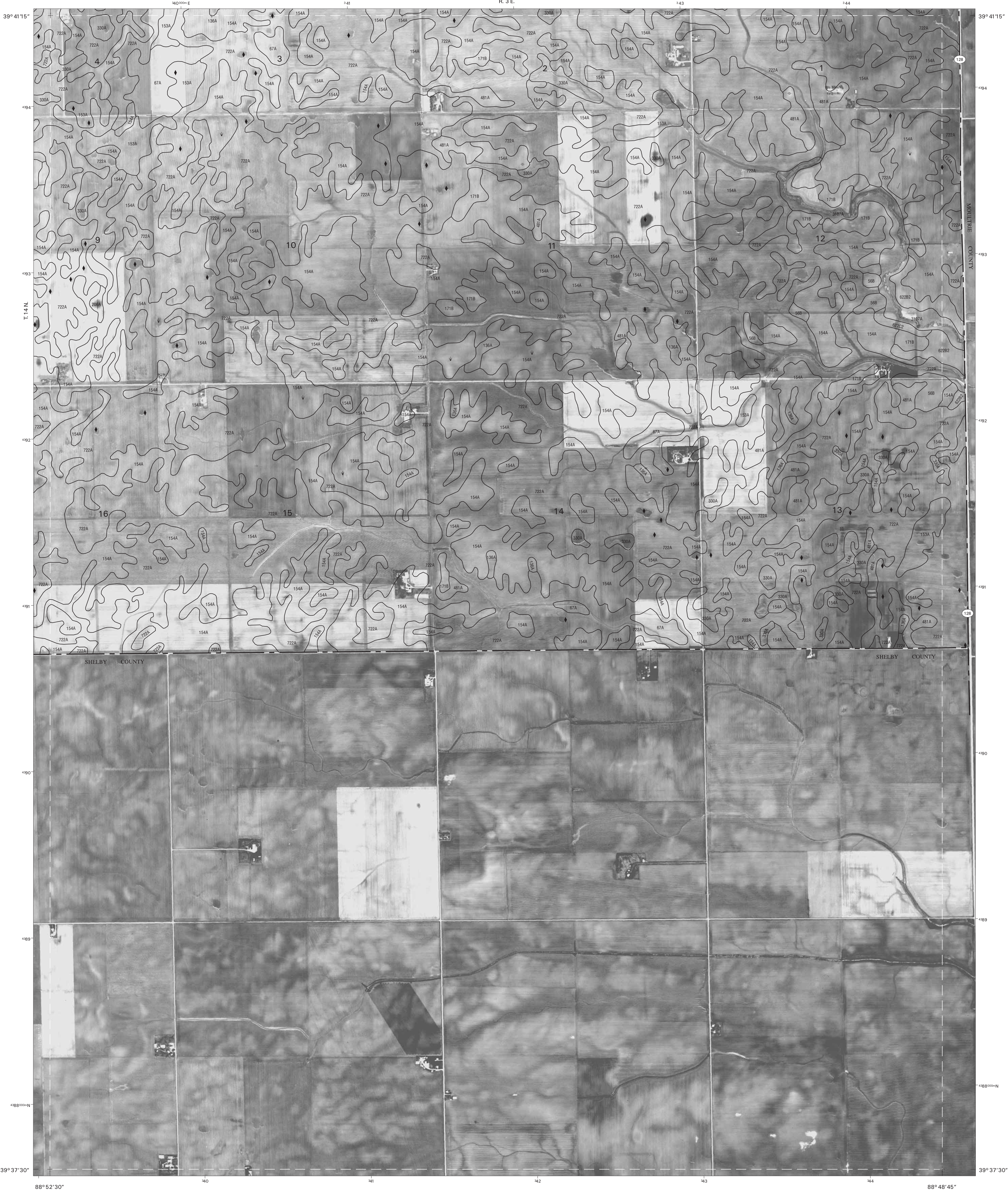


46	47	48	49 MACON EAST NW
53	54	55	47 MACON EAST NE
			48 DALTON CITY NW
			83 MACON EAST SW
			55 DALTON CITY SW

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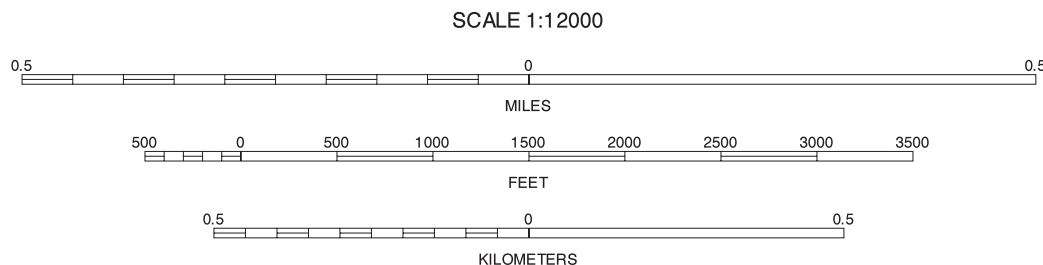
MACON EAST SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 54 OF 55

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks; Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



47	48	49
54		

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DALTON CITY SW, (OVERSIZED) ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 55 OF 55

Soil map delineations extending beyond the dashed white quadrangle neckline are for reference only and are included on adjacent map sheets.